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ABSTRACT

The purpose of this study was to investigate the ability of good and poor readers in grade five to recognize the form of derived words where morphophonemic alternation occurs but orthographic consistency exists. A 2 x 2 x 4 factorial design was used to investigate the effects of reading ability, word reality (real and pseudo), and mode of presentation for stimuli and response items (oral and written). Five subjects were assigned to each of the sixteen cells, with an equal number of males and females represented in the categories of good readers and poor readers. Target words were placed in sentence contexts within the purported vocabulary size of the subjects. Theme forms of the target word were presented orally or visually to fit as slot-fillers in the first sentence which was read aloud. A second sentence was read aloud with a slot indicated for the position of the derived form of the target word. Subjects were asked to select one of four alternatives, depicted orally or visually depending upon cell, to correctly occupy the indicated slot. A pattern was revealed, suggesting that good readers can more ably recognize the underlying forms of words than poor readers. When surface structures are related, these differences between good and poor readers diminish. (Author/WR)

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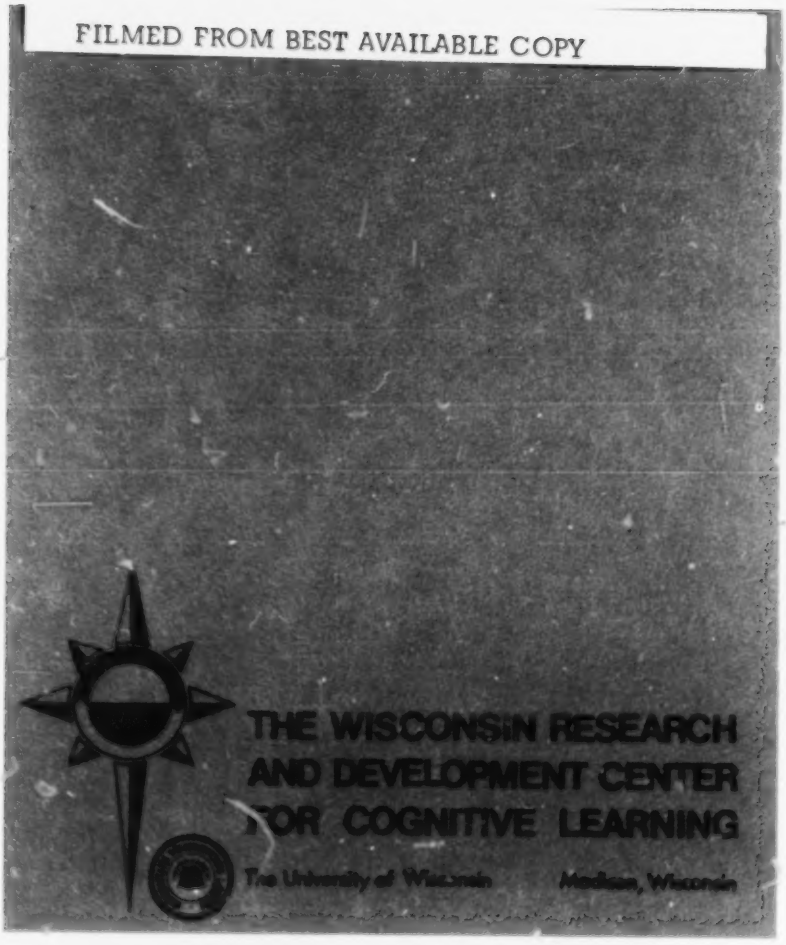

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THE MORPHOPHONEMIC PERFORMANCE OF GOOD AND POOR READERS

Report from the Project in Elementary Reading

By Robert A. Barganz

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Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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This Technical Report is from the Individually Guided Instruction in Elementary Reading Project in Program 2. General objectives of the Program are to establish rationale and strategy for developing instructional systems, to identify sequences of concepts and cognitive skills, to identify or develop instructional materials associated with the concepts and cognitive skills, and to generate new knowledge about instructional procedures. Contributing to these Program objectives, the Reading Project staff, in cooperation with area teachers, prepared a scope and sequence statement of reading skills for the elementary school as a first step in the development of an instructional program. From this outline, assessment procedures and group placement tests have been developed, and existing instructional materials have been keyed to the outline. Research is conducted to refine the program and to generate new knowledge which will be incorporated into the system.

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Abstract

The primary purpose of this study was to investigate the ability of good and poor readers in grade five to recognize the form of derived words where morphophonemic alternation occurs but orthographic consistency exists. Drawing primarily upon the theoretical frameworks of Chomsky and Halle, Venezky, and MacDonald, the study focused upon the psychological validity of phonological and reading competence models.

A 2 x 2 x 4 factorial design was used to investigate the effects of reading ability (good and poor), word reality (real and pseudo), and mode of presentation for stimuli and response items (oral and written). Five subjects were assigned by random to each of the sixteen cells, with an equal number of males and females represented in the categories of good readers and poor readers. Target words were placed in sentence contexts within the purported vocabulary size of the subjects. Theme forms of the target word were presented orally or visually to fit as slot-fillers in the first sentence which was read to the subjects aloud. A second sentence was read aloud with a slot indicated for the position of the derived form of the target word. Subjects were asked to select one of four alternatives, depicted orally or visually depending upon cell, to correctly occupy the indicated slot.

Target words were represented by 110 items exemplifying twenty-two phonemic changes. The changes included both consonant and vowel alternations where primary stress is constant and vowel alternations where primary stress patterns shift.

An analysis of the data by planned comparisons revealed that good readers performed significantly better ($p < .05$) than poor readers on the oral-oral, oral-visual, visual-oral, and visual-visual tasks. Performance on real words was significantly better ($p < .05$) than on pseudo words on the oral-oral, visual-oral, and oral-visual tasks. Conventional orthography was selected as correct significantly more often ($p < .05$) than phonemic approximation spellings in the oral-visual task by good readers; this was not true for poor readers. Significant interaction occurred between the factors of reading ability (poor) and mode of representation (visual-visual).

A pattern was revealed suggesting that good readers can more ably recognize the underlying forms of words than poor readers. When surface structures are related these differences between good and poor readers diminish.

Wayne Otto
Major Professor

CHAPTER I

INTRODUCTION, BACKGROUND AND PURPOSE OF THE STUDY

Introduction

Reading is not an isolated, independent act. The learner must draw upon both his tacit knowledge of the rules of language and the representation of that language by conventional symbols. The degree to which these two gross variables contribute to good reading is unclear. On one hand, comprehensive comparisons of normative language performance with reading performance are infrequent to date; on the other hand, most studies dealing with the orthography are considered in terms of phonics rules rather than in relation to the language performance of the reader himself.

The purpose of this study was to investigate the abilities of good and poor readers to recognize the form of derived words where morphophonemic alternation occurs but orthographic constancy exists. Recent models of linguistic (Chomsky and Halle, 1968; Venezky, 1970b) and reading (MacDonald, 1969a) competence point to regular phonological rules which are reflected in the tasks. Normative performance data which may reflect the

developmental acquisition of such competence is nonexistent. It is with this exploratory aspect in mind that this study is undertaken.

The tasks to be performed were selected to provide the analysis of data reflecting both word reality and modality of decoding and encoding. Hence, both real words and pseudo words were incorporated in the design, as well as the four stimulus and response patterns available with oral and visual word representation, oral-oral, oral-visual, visual-oral, and visual-visual.

Background

Considerable effort has been directed toward an assessment of the "regularity" of English and its effects on readers. Historically, attention has focused on the grapheme-phoneme correspondences (Berquist, 1967; Carroll, 1969; Hodges and Rudorf, 1965), the resulting aspects of which have led to several repercussions in the field of reading: 1) the publication of "linguistic" texts emphasizing minimal pairs, and 2) the notion that "cracking the code" is best undertaken via an early phonic approach (Chall, 1967). Evidence suggests that phonic generalizations, however, may not adequately equip students for their encounters with English words (Bailey, 1967; Burmeister, 1968; Clymer, 1963; Emans, 1967). In such

cases the reader may be instructed to direct his attention to other alternatives such as contextual clues, structural analysis, and the dictionary.

The standpoint that the reading process may be described in direct letter-to-sound terms seems unfeasible. American descriptivists such as Bloomfield (1961) and Fries (1963) recognized the unphonemic elements of English orthography and considered them deviations to be taught last. Current descriptions of the relationship between conventional English orthography and the sound system of the language lend support to the belief that the orthographic system employed in English is far more regular than previously thought. In fact, it may be considered a near optimal system for native speakers of English (C. Chomsky, 1970; N. Chomsky, 1970). As Venezky (1970a) and Chomsky and Halle (1968) have shown, a direct letter-to-sound relationship description, though simpler, is a less adequate method linguistically. The system is not based on such a univariate foundation alone.

Rather, it corresponds to a more abstract level of representation. Venezky (1967) states, "Spelling units are not related directly to sound, but to an intermediate (morphophonemic) level first, and then to sound [p. 84]." In a more recent publication (Venezky, 1970b) this intermediate level is described as being "not strictly a

morphophonemic level [p. 46]," but one labeled as such. Chomsky and Halle (1968) state, "The term 'morphophonemic representation' seems to us appropriate only if there is another linguistically significant level of representation, intermediate in 'abstractness' between lexical (phonological) and phonetic and meeting the conditions placed on 'phonemic representation' in modern structural linguistics. We feel, however, the existence of such a level has not been demonstrated and that there are strong reasons to doubt its existence [p. 11]." Those authors forego the use of the label "morphophonemic," but speak rather of underlying representations of words and describe the rules by which these forms are converted into phonetic realizations. Evidence for the support of abstract rules on psychologically valid grounds has been reported by Anisfeld (1969).

According to phonological theory within the framework of transformational grammar, in the lexical level of representation of a word many phonetic features of spoken language are suppressed. Although phonetic variations are considerable, they are automatic in the phonological system of the language. Conventional orthography, on the other hand, ignores them and by corresponding to lexical spelling rather than phonetic representation, "permits immediate

direct identification of the lexical item in question, without requiring the reader to abstract away from irrelevant phonetic detail [C. Chomsky, 1970, p. 291]."

An orthography which corresponds directly in letter-to-sound terms represents the phonetic features of a lexicon. The International Phonetic Alphabet attempts this graphic depiction of spoken language. And with this system the items "mortal" and "mortality" are represented as /mɔrtl/ and /mɔr'tæləti/. The pair of words, because of the vowel alternation, receives two different spellings and each member of the pair constitutes a separate lexical item. Conventional orthography, however, irdicates the semantic relationship between the pair members by disregarding the automatic pronunciation shift and by presenting the members as variant forms of the same word. This maintenance of semantic correspondence (or morpheme identity) reveals a regularity between semantically related items which a phonetic orthography disregards. By this system, then, a higher order of regularity may be observed than by a direct letter-to-sound representation method.

It is in this sense that the system may be near maximal in efficiency for the native speaker of English.

The spelling system indicates graphically the "common item" relationship between theme forms and derived forms. The preservation of the morpheme identity aids the reader in perceiving the semantic relationship which exists. That is, the underlying forms may be recognized as being the same, although phonetic stress and consonant and vowel values may vary.

It is suggested, therefore, that "what the mature reader seeks and recognizes when he reads is not what are commonly called grapheme-phoneme correspondences, but rather the correspondence of a written symbol to the abstract lexical spelling of words [C. Chomsky, 1970, p. 296]." "In order to progress to more complex stages of reading, the child must abandon this early hypothesis and come eventually to interpret written symbols as corresponding to more abstract lexical spellings [C. Chomsky, 1970, p. 297]." Thus an indirect relationship of orthography to pronunciation must be learned.

For native speakers of English a knowledge of the phonological rules of English that relate underlying representatives to sound is automatic: this is not true for non-native speakers of English. "And it is

this knowledge of the phonological rules which essentially defines what it is that a person who knows how to read can be said to have knowledge of [MacDonald, 1969b, p. 323]." Thus, as C. Chomsky (1970) suggests, the ability of the child to interpret the orthography directly at the lexical level should increase naturally as his phonological competence increases.

A description of the developmental process of norms for phonological rules is in no way fixed or very stable at the present. N. Chomsky (1970) has stated, "It is by no means obvious that a child of six has mastered this phonological system in full. He may not yet have been presented with the evidence that determines the general structure of the system [p. 17]."

A study done by Robinson (1967) on the developmental pronunciation of suffixed words indicates that the system seems, indeed, to be one not fully internalized by the time children may need it for reading. The four age levels tested were grades Three, Six, Nine, and adult. Subjects were asked to form suffixed words from theme words and theme words from suffixed words. Ability was measured in terms of stress placement and vowel and

consonant values. The tasks, then, required encoding by the subjects after they read the stimulus sentence. Results indicated that there were fairly regular developmental progressions in the abilities measured and performance was significantly better on real words than on pseudo words.

The relationship of phonological processing ability to reading ability is unclear. Theoreticians have proposed that at least in the formative stages of reading a process of inner speech occurs. Carroll (1969) states, "Silent reading of a printed message involves decoding the message into some form of covert spoken behavior or 'inner speech,' and that in turn, if the message is to be understood, doubtless depends on an underlying competence in the grammatical and semantic rules of the language [p. 6]." According to the Goodman (1968) schema this conversion into an inner speech is classified as a "recoding" stage; the term "decoding" is reserved for a subsequent stage whereby meaning is acquired.

While the degree to which inner speech is present in suffixed words has not been researched, the psychological reality of inner speech has been validated. Edfeldt's (1959) study shows an increase of inner speech, as measured by electromyographic methods, as reading material becomes more difficult. In light of C. Chomsky's (1970) comments,

the question remains unanswered as to whether processing written words with inner speech represents an early stage of reading which may be reverted to. The suggestion exists that different stages of reading may be employed by the individual as the difficulty of the material varies for him.

Existing research on the distinctions between good and poor readers has been primarily of a descriptive-correlational nature. Langman (1960) suggests that what poor readers lack in learning to read is the "ability to direct attention to the significant visual and auditory stimuli in word recognition situations [p. 31]." Hence in the case of suffixed words, the good reader may be focusing on the "common item" relationship with the theme word, while the poor reader is still doggedly attempting to translate or "recode" on the direct grapheme-phoneme basis.

The term "significant stimuli" under such conditions would suggest that the stimuli to be pursued first would be that of a semantic relationship and, second, the grapheme-phoneme correspondence relationship. This followed to its logical conclusion would suggest that the good reader exploits the "morphophonemic" nature of the orthography more than the poor reader does. And

concomitantly in doing so, he has focused attention on a semantic relationship which facilitates Goodman's "decoding" stage.

The good reader, then, may be said to impose the significant structure upon a derived word. Neisser (1967) contends that in word perception the subject constructs what he sees in an act labeled "figural synthesis." "In this sense it is important to think of focal attention as a constructive, synthetic activity rather than as purely analytic. One does not simply examine the input and make a decision; one builds an appropriate visual object [Neisser, 1967, p. 94]." This type of cognitive processing, it would seem, may be derived from the subject's set to search for such relationships. Such performance appears somewhat unsurprising in light of the findings of Levin and Watson (1963) that a "set for diversity" is advantageous; that is, if subjects are presented with multiple correspondences early in instruction, in contrast to a one-to-one correspondence as in "linguistic" readers, they will be more likely to develop a useful problem solving approach to the reading task.

Questions concerning the relationships between phonological processing and reading ability were explored in this study. Also investigated is the psychological

reality of the "optimal" nature of conventional orthography and the utilization of its multivariate cue system by good and poor readers.

Problem

The purpose of this study was to investigate questions concerning conventional English orthography, phonological rule performance, and the performance abilities of good and poor readers in the fifth grade. Relationships among these components are also investigated in the hope that the reading process itself may be more clearly described and some influences on it seen.

One question pursued was whether conventional English orthography may be considered "optimal" in contrast to a more "phonemic" orthography. To explore this dimension derivationally formed words were employed where consonant and vowel values regularly change by rule from the theme form to the derived form, e.g., logic - logician, rise - risen, baron - baronial. Both real words and pseudo words were used to measure the degree to which the rule systems and cue systems are internalized.

Phonological performance, as measured by a recognition task, was investigated. Questions pursued were the degree to which such performance exists in both real words and pseudo words and the degree to which it

discriminates between good and poor readers. It was investigated in terms of both oral and visual (orthographic) method of presentation and mode of response.

Thus an oral - oral task measured subjects' ability to auditorily recognize the correct form of derivational relationships where consonant and vowel alternation occurs. In such a task the theme form (or root word) of the target word was verbalized within a spoken sentence context: for response, four verbalized alternatives were presented as slot fillers of a spoken sentence used for context. For example, the word "revere" was used in a sentence which was read aloud by the experimenter. After the sentence was read, the word "revere" was said aloud twice by the experimenter. A second sentence containing the word "reverence" was read aloud by the experimenter. The word "reverence" was not said, but the position of it was indicated by a toy cricket. Four pronunciations of "reverence" were presented on a tape recorder, one item was to be selected as correct.

An oral - visual task measured subjects' ability to relate a changed phonetic form to orthographic representation, a skill of spelling in contrast to reading. Good readers would be expected to perform better on such a task. Furness (1956) found that the correlations between

scores on reading tests and scores on spelling tests usually fall in the range of .80 to .85. Otto and McMenemy (1966) and Harris (1970) warn, however, that even though poor readers are rarely good spellers, good readers may be poor spellers. In this task the theme form of the target word was verbalized within a spoken sentence context: for response items, four orthographically depicted items were presented as slot fillers of a spoken sentence used for context. For example, the word "revere" was used in a sentence which was read aloud by the experimenter. After the sentence was read, the word "revere" was said aloud twice by the experimenter. A second sentence was read aloud by the experimenter. The word "reverence" was not said, but the position of it was indicated by a toy cricket. Four orthographic depictions of "reverence" were presented by an overhead projector; one item was to be selected as correct.

A visual - oral task measured subjects' ability to ascribe the correct changed phonetic form auditorily from a stimulus presented in conventional orthography, as in an oral reading situation. The target word was presented in orthographic form within a spoken sentence context. The response items were presented as in the oral - oral task. For example, the word "revere" was presented by an overhead

projector while a sentence, in which the word was used, was read aloud by the experimenter. The position of "revere" in the sentence was indicated by a toy cricket. A second sentence was read aloud by the experimenter. The word "reverence" was not said, but the position of it was indicated by a toy cricket. Four pronunciations of "reverence" were presented on a tape recorder; one item was to be selected as correct.

Finally, a visual - visual task measured subjects' ability to recognize a derivational relationship by cues provided by the orthography, a reading skill of bypassing direct spelling-to-sound correspondences to the facilitation of semantic relationships. The target word stimulus was presented in conventional orthography within a spoken sentence context. The response was presented as in the oral - visual task. For example, the word "revere" was presented by an overhead projector while a sentence, in which the word was used, was read aloud by the experimenter. The position of "revere" in the sentence was indicated by a toy cricket. A second sentence was read aloud by the experimenter. The word "reverence" was not said, but the position of it was indicated by a toy cricket. Four orthographic depictions of "reverence" were presented by an overhead projector; one item was to be selected as correct.

The abilities of good and poor readers were related to the variables discussed above. The significance of such comparisons is that the performance variables in those areas may illuminate some of the component skills which distinguish good and poor readers. Hence, such skills may then help to define better the process of reading by determining the psychological reality of the theoretical frameworks proposed by Venezky, Chomsky and Halle, and MacDonald.

Nine hypotheses were tested:

1. Good readers will perform significantly better than poor readers on the oral - oral task.
2. Good readers will perform significantly better than poor readers on the oral - visual task.
3. Good readers will perform significantly better than poor readers on the visual - oral task.
4. Good readers will perform significantly better than poor readers on the visual - visual task.
5. Performance on real words will be significantly better than on pseudo words on the oral - oral task.
6. Performance on real words will be significantly better than on pseudo words on the oral - visual task.

7. Performance on real words will be significantly better than on pseudo words on the visual - oral task.
8. Performance on real words will be significantly better than on pseudo words on the visual - visual task.
9. Subjects will select the correct response reflecting conventional English orthography more frequently than phonemic approximations in the visual - visual task.

CHAPTER II

METHOD

The primary purpose of this study was to clarify the relationship between phonological processing ability and reading and the relationship between the use of orthographic morpheme identity cues and reading. Consequently three major variables were investigated: 1) reading level--good and poor, 2) word reality--real and pseudo, and 3) word representation--oral and visual for stimulus and response. Five subjects were assigned to each of the 16 cells for a total of 80 subjects.

Subjects

Fifth grade pupils from a suburban area of Madison, Wisconsin, served as subjects. Spache and Spache (1969) suggest that structural elements be emphasized in the intermediate grades. Fifth grade students were considered representative of that population. The participating schools were Westside Elementary School, Northside Elementary School, Eastside Elementary School, Southside Elementary School, and C. H. Bird Elementary School in Sun Prairie, Wisconsin. The school population draws from social classes ranging from upper-lower to upper-middle and from both urban and rural settings.

Subjects were both males and females, with an equal distribution of each (20) in the categories of good readers and poor readers. Good readers were operationally defined as those subjects with Word Meaning and Paragraph Meaning scores in the 6th, 7th, 8th, and 9th stanines of the Stanford Achievement Test, Intermediate II. Poor readers were operationally defined as those subjects with Word Meaning and Paragraph Meaning scores in the second, third, and 4th stanines of the Stanford Achievement Test, Intermediate II.

Materials

The lexical items which served as stimulus and response items consisted of a theme word and its derived form. The words selected for the tasks reflected alternation rules described by Venezky (1970 b). The catalogue of words reflecting such changes was considerably limited compared to Venezky's framework because of the constraint that phonological change was not to be reflected by the orthographic representation. That is, consonant and vowel alternation were unmarked. Venezky (1970 b) states, "The orthographic preservation of morphemic identity is predicted on the assumption that the reader knows the phonemic alternations that accompany derivational and inflectional

formations [p. 120]." Hence a derivational relationship such as invade - invasion, while regular, were inappropriate. Likewise, words which may spuriously appear related orthographically but which do not reflect semantic similarity, such as inside - insidious, were inappropriate.

The corpus of words reflected those in Webster's New School and Office Dictionary (1965). While the initial list, from which samples were drawn, may not have included all appropriate alternation items extant, it did include a broad sampling still outside the domains of the technical vocabulary of specialized disciplines.

Word samples were placed under descriptive morphophonemic categories reflecting the phonological changes. Those descriptive categories in which fewer than six samples existed were eliminated, leaving twenty-two alternation types which were included in the task. Among the twenty-two types, the conditions vary under which alternation occurs. Represented were eight consonant changes: {k - s}, and seven synthesis patterns, {t - č}, {t - š}, {d - ǰ}, {s - š}, {s - ž}, {z - ž}, and {k - š}. Synthesis is "the fusion of two consonants, brought together by morpheme combination, into a single new phoneme different from both its constituents (Francis, 1958, p. 215)," as in act - action. Five patterns consisted of vowel alternation,

from free alternate (long pronunciation of a vowel) to checked alternate (short pronunciation of a vowel), where major stress patterns did not change: {e - æ}, {i - ɛ}, {ai - I}, {o - ɑ}, and {ju - ʌ}, as in sane - sanity. And the remaining nine patterns consisted of vowel alternations dependent upon major stress pattern change. Four of these were due to the loss of stress: {e - ə}, {i - ə}, {ai - ə}, and {æ - ə}, as in horizon - horizontal. Five were due to the acquisition of stress: {ə - e}. {ə - i}, {ə - ɑ}, {ə - æ}, and {ə - o}, as in mortal - mortality.

Five individual items from each category were selected. Where several varieties of morphemes were available to serve as suffixes, word samples were placed in "identical morpheme" groups. The number of items were then selected according to the proportional frequency which a morpheme group represented. Hence, if 20 cases of -ity and 17 cases of -ism were the existing suffixes available, three items were selected from the -ity group and two items from the -ism group. In cases where several suffix patterns existed, samples were drawn from the five most abundant groups. For those cases not so clear cut, the writer utilized a random method, the words not being seen. And because word-frequency (Savin, 1963) and word length (McGinnies, Comer,

& Lacy, 1952) may contribute to difficulty, words were randomly selected from all within groups. See Appendix A.

Pseudo words and their derived forms were created to reflect the types of alternations represented by the real word groups. This composition, a mirror to reality, consequently reflected five word items for each of the concomitant alternations. See Appendix A.

The creation of such words posed a problem for the writer inasmuch that were each pseudo word created from a real word template, the variation may have been minimal and, in fact, have appeared too real. In an effort to overcome this dilemma the following procedures were employed. The pseudo words were created with attention given to such qualities in the real words as word length, type of suffixation, and the environment preceding the phoneme in alternation. The pseudo words were read for their proximity to real words by three persons, each representing one of the disciplines of reading, linguistics, and literature. Revisions were made on the basis of suggestions.

Both real words and pseudo words were put into straightforward, declarative sentences to provide a contextual setting. A sentence context was provided for both the theme form and the derived form. In the theme

word sentence the meaning of the target word was stated; in the derived form sentence the semantic relationship of the target derived word was presented. Care was given to the parallel structure of the sentences so that the theme form appeared before the verb group and the derived form after the verb group. The derived form was always the last or penultimate word of the sentence, so that impositions upon subjects' memory would be minimal. Depending on the part of speech of the theme and derived forms, the constructions followed the general pattern of

An X is a Y.

A Y has the quality of X+.

The lexical items which constituted the sentential context for the target words were restricted so that they fell below the purported median free association vocabulary size of fifth graders (Bryan, 1953). Only words falling below this median were utilized by comparison to the Kučera (1967) word frequency list.

The meanings provided within sentences for real words were in accord with Webster's New World Dictionary of the American Language, College Edition (Friend & Guralnik, 1960). An effort was made to keep such meanings as simple and as commonly known as possible within the writer's

judgment, since sentences were provided for contextual setting rather than a measurement of word knowledge. See Appendix B.

Definitions for pseudo words presented a creative challenge to the writer since linguistic principles suggest that significant concepts of a society are represented in the lexicon. It was felt that dilemma would be best resolved by foregoing the criterion of "significance" and pursuing the task by drawing upon the various nature of the real word concepts. This approach resulted in word meanings dealing with human characteristics and actions, physical properties and phenomena, and social and political structure, e.g., To be lemace is to be groggy and unaware. A person who is groggy and unaware when he wakes up is lemacious. The somewhat whimsical quality, it was hoped, would be less apparent to children than adults. See Appendix B.

The same body of consultants which reviewed the pseudo words for their proximity to real words also reviewed the pseudo meanings. Revisions were made in accord with the suggestions elicited.

All items for the task were ordered at random. This was done to avoid, as much as possible, the perception of types of alternations by the subjects.

Response choices varied systematically, focusing on those phonemes which alternated. In stress shifting words, the focus of attention was placed on the vowel linearly nearest the added suffix. The order of response alternatives was assigned by random. See Appendix C.

For visual mode of response the pattern was as follows (e.g., theme word = act):

1) the correct form of the derived word (action);
2) an approximation to the phonological change of the derived word, with only the alternating phoneme transcribed to indicate the change (acshion);
3) an approximation to the phonological change of the derived word, with both the alternating phoneme and the following suffix transcribed to indicate the change (acshun);
4) a form of the derived word in which the phonological change is indicated by an incorrect approximation to the alternating phoneme alone (aczhion).

The "approximations" are not labeled phonemic realizations in order that it is not mistakenly assumed that a system such as the International Phonetic Alphabet was employed.

Rather, one might consider the approximations as plausible error types, phonemically generated but morphemically abstentious.

The systematic variation of the oral responses was more complex since phonemic variation is predictable by rule. Quite simply, with orthographic representation one has the alternatives of depicting or not depicting those regular phonological changes which occur, especially with respect to stress placement effects. Acoustically, stress placement will account for vowel quality, leaving no alternatives. Consequently three patterns of alternatives were constructed for the oral responses: A) consonant changes and vowel changes where the main stress appeared on the surface not to change; B) the placement of stress accompanied by vowel change; and C) a loss of stress accompanied by vowel change.

In pattern A the response choices were as follows (e.g., theme word = Ik'strim):

1) the correct form of the derived word (Ik'stremati);
2) the derived form without the alternation (Ik'strimati);
3) the derived form with an incorrect alternation (Ik'stromati);

4) the derived form with an incorrect alternation (ɪk'stræmətɪ).

In pattern B the response choices were as follows (e.g., theme word = ('nɔrml):

1) the correct form of the derived word, with respect to vowel quality and stress (nɔr'mælətɪ);
2) the derived word with the vowel quality and stress of the theme word imposed on the structure ('nɔrmlətɪ);
3) the derived word with the correct stress but an incorrect vowel quality on the vowel linearly nearest the suffix (nɔr'mɪlətɪ);
4) the derived word with a correct stress but incorrect vowel qualities for both changing phonemes (nər'mɪlətɪ).

Hence, in pattern B choice 1 corresponded to a change in both stress and phonology, choice 2 to a change in neither, and choice 3 to a change in phonology alone. A change in stress alone was not feasible since the unstressed vocalic quality of [ə] is persistent. In lieu of this, choice 4 operated as a perhaps unlikely but possible error type.

In pattern C the response choices were as follows (e.g., theme word = dɪ'faɪn):

1) the correct form of the derived word, with respect to vowel quality and stress (dɛfə'nɪšən);

2) the derived word with the vowel quality and stress of the theme word imposed on the structure (dɪ'farnəšən);
3) the derived word with the stress pattern of the theme word imposed and a variant vowel quality on the vowel linearly nearest the suffix (dɪ'fɑrnəšən);
4) the derived word with the correct stress pattern but an incorrect vowel quality for the stress acquiring phoneme (dəfə'nɪšən).

Consequently in pattern C choice 1 represented a change in both stress and phonology, choice 2 a change in neither, and choice 3 a change in phonology. Again because of the vowel conditioning effect of loss of stress, choice 4 operated as a possible error type.

The necessity of systematically specifying error types may seem unduly complicated. However, in her developmental study of the pronunciation of suffixed words, Robinson (1967) states, "Although the operation of shifting stress and changing phonology is essentially one and the same process, with one operation influencing the other, the evidence given here suggests that one part of the operation is more difficult, i.e., the changing of phonological values [p. 117]." Such evidence clearly

demands more than capriciously assigned response alternatives.

Procedure

The Stanford Achievement Test, Intermediate II was administered to all grade 5 students in the Sun Prairie Public Schools by the regular classroom teachers. All testing took place during the week of April 18, 1971. The correction and tabulation of the results of these tests was conducted by hand by the writer. Subjects were assigned to the rank of good or poor reader within the limitations of the operational definition, and they were assigned to treatment sessions by random method. Treatment sessions were conducted within three weeks of the administration of the Stanford Achievement Test.

One experimenter, the writer, conducted all treatment sessions. Likewise, the writer recorded on magnetic tape those presentations for the oral response items.

It was planned that the total task of 110 items would be presented in two sessions, each one of 55 items. Because of scheduling difficulties, the task was presented in three sessions in four cases, sessions 2 and 3 each preceded by a 3 item pre-task. In another case, a subject, who revealed that he had misunderstood the instructions after session 1, was retested on that half of the task two days later. All

other treatment sessions were completed in two sessions. Each first half of the task was preceded by a 6 item pre-task. For real word cells, all task items consisted of real words; for pseudo word cells, the first 3 task items consisted of real words, the remaining 3 were pseudo words. The second half of the task was preceded by 3 pre-task items previously encountered by the subjects. For real word cells, real words were presented; for pseudo word cells, pseudo words were presented.

In all circumstances the sentences containing the target words were read to the subjects so that the contextual setting was independent of reading ability. For the visual stimuli cells, the theme form of the target word was projected by an overhead projector while the sentence was read and for five seconds thereafter. For the oral stimuli cells, the theme form of the target word was repeated twice after appearing within the sentence context.

Responses were made with a scanning technique. Neisser (1967) suggests such a technique so that the presence of an "after image" does not impose a template effect. His discussion is directed towards visual images, but it is reasonable to expect that the same effect may operate auditorily. Subjects, therefore, were requested

to select one of four choices of word forms (orally or visually) to fit as a slot filler into a spot indicated by a metal cricket toy in the response sentence read. For visual responses, subjects were shown the choices by an overhead projector after the sentence was read and were requested to note the letter of their choice (a, b, c, or d). For oral responses, the list of four alternatives were read twice on a tape recording (along with each alphabetical designation) after the sentence was read. Subjects were requested to indicate the letter corresponding to their choice.

Four measures of internal consistency were computed as a method of determining the reliability of the task. A split-half technique was employed, correlating scores on odd-numbered items with scores on even-numbered items, as suggested by Sax (1968). Using a Pearson r for the calculations, the correlations are as follows: real words = .90, pseudo words = .90, good readers = .87, and poor readers = .88. Sax (1968) suggests that with a split-half method a correction may be appropriate to compensate for the smaller number of items used in correlating half of a test with another half. It was felt that the more conservative estimation previously described was sufficient.

Design

A 2 X 2 X 4 factorial design was employed. The factors were reading ability (good and poor), word reality (real and pseudo), and mode of presentation for stimulus and response items (oral and visual). Factorial combination of the independent variables resulted in sixteen experimental groups. The dependent variable was the number of correct responses made.

	Good		Poor	
	Real	Pseudo	Real	Pseudo
Oral - Oral	5	5	5	5
Oral - Visual	5	5	5	5
Visual - Oral	5	5	5	5
Visual - Visual	5	5	5	5

Fig. 1.--Experimental Design with Number of Subjects Indicated.

CHAPTER III

RESULTS AND DISCUSSIONS

The analysis of the data was pursued through four major types of tests. Hypotheses 1 through 8 were tested by a planned comparisons technique. This method is suggested (Hays, 1963, Chapter 14), instead of an ordinary analysis of variance and F test, when one has particular questions to be answered at the onset of an experiment. It is an assurance that comparisons are unrelated and nonredundant.

Hypothesis 9 was tested by a single-sample test involving proportions (Blalock, 1960). This was necessary since the focus of the hypothesis was on the degree to which conventional orthography was utilized in comparison to phonemic approximation spellings.

Following the testing of hypotheses 1 through 8, an F test for "other comparisons" was made. "If this F value is significant, then [those] comparisons of secondary interest can be examined individually by post-hoc methods [Hays, 1963, p. 478]."

Several Scheffé post-hoc comparisons were computed. Following the recommendation of Hays (1963) not all

conceivable comparisons were made. Rather, comparisons were made where the writer, upon inspection of the data, suspected large effect to lie.

Hypotheses 1 through 8 were tested by the technique of planned comparisons. Two conditions must be met before these comparisons may be considered independent and non-overlapping. First, an assumption was made that population distributions were normal. Second, the condition of orthogonality was met. The criterion of orthogonality in planned comparisons assures one that comparisons are statistically independent.

The conditions set for achieving orthogonality depend only on the weights assigned to the sample means which are compared. The sum of the products of any two comparisons across columns must be 0, and the sum of the weights for each row must equal 0. Table 1 indicates that these criteria were met for the 8 comparisons which were made and that all comparisons were orthogonal.

The data used in this study for the analyses were the number of correct responses made by a subject on the task. Mean scores were tabulated for the 16 treatment groups. The results are presented in Table 2.

Since the 8 hypotheses tested were directional, a t test was employed in the comparisons and level of

TABLE 1

WEIGHTS ASSIGNED TO MEANS FOR PLANNED COMPARISONS

	Good								Poor							
	Real				Pseudo				Real				Pseudo			
Hypotheses	o-o	o-v	v-o	v-v	o-o	o-v	v-o	v-v	o-o	o-v	v-o	v-v	o-o	o-v	v-o	v-v
1.	8	0	0	0	8	0	0	0	-8	0	0	0	-8	0	0	0
2.	0	8	0	0	0	8	0	0	0	-8	0	0	0	-8	0	0
3.	0	0	8	0	0	0	8	0	0	0	-8	0	0	0	-8	0
4.	0	0	0	8	0	0	0	8	0	0	0	-8	0	0	0	-8
5.	8	0	0	0	-8	0	0	0	8	0	0	0	-8	0	0	0
6.	0	8	0	0	0	-8	0	0	0	8	0	0	0	-8	0	0
7.	0	0	8	0	0	0	-8	0	0	0	8	0	0	0	-8	0
8.	0	0	0	8	0	0	0	-8	0	0	0	8	0	0	0	-8

TABLE 2

MEAN SCORES ON TASK BY TREATMENT

	Good		Poor	
	Real	Pseudo	Real	Pseudo
Oral - Oral	70.4	49.4	52.4	29.0
Oral - Visual	91.8	82.8	55.4	45.4
Visual - Oral	83.8	65.4	59.2	39.6
Visual - Visual	92.8	87.4	73.6	83.8

significance was based on the t distribution. Computations were based on 60 degrees of freedom rather than the existing 64 degrees of freedom, resulting in conservative estimates. It was decided to test the comparisons at the .05 level. The results of the analysis are presented in Table 3.

Hypothesis One. Good readers will perform significantly better than poor readers on the oral - oral task.

Inspection of Table 3, Comparison 1, reveals a significant difference ($p < .0005$) between good readers and poor readers on the oral - oral task; therefore, hypothesis one was not rejected. The results of this task suggest that the phonological performance of the good readers was greater than that of poor readers.

TABLE 3

SUMMARY OF PLANNED COMPARISONS TESTS

SOURCE	SS	df	MS	F	t	Probability
Between groups	29,711.4	15				
Comparison:						
1. o-o, Gd.> Pr.	1,843.2	1	1,843.2	12.29	3.5060	.0005
2. o-v, Gd.> Pr.	6,808.0	1	6,808.0	45.41	6.7381	.0005
3. v-o, Gd.> Pr.	3,175.2	1	3,175.2	21.18	4.6016	.0005
4. v-v, Gd.> Pr.	649.8	1	649.8	4.33	2.0817	.025
5. o-o, R> Pdo.	2,464.2	1	2,464.2	16.44	4.0538	.0005
6. o-v, R> Pdo.	451.2	1	451.2	3.01	1.7347	.05
7. v-o, R > Pdo.	1,805.0	1	1,805.0	12.04	3.4695	.0005
8. v-v, R> Pdo.	28.8	1	28.8	.19	-.4383	
Remainder	12,486.0	7	1,783.7	11.90		.001
Error (Within groups)	9,595.6	64	149.9			

Good readers were more able than poor readers to correctly identify the derived forms of words when vowel and consonant values changed, sometimes as a result of major stress pattern changes. One fundamental factor in performance is knowledge of the grammar that determines the intrinsic connection of sound and meaning. Good readers seem to have internalized this system to a greater degree than poor readers.

Hypothesis Two. Good readers will perform significantly better than poor readers on the oral - visual task.

An inspection of Table 3, Comparison 2, reveals a significant difference ($p < .0005$) between good readers and poor readers on the oral - visual task; therefore, hypothesis two is not rejected. These results indicate that good readers were considerably more able to recognize the correct spellings of derived words after hearing the theme forms than poor readers were. The finding is consistent with the reports of Otto and McMenemy (1966) and Harris (1970) that poor readers are rarely good spellers. Good readers were more able to recognize the underlying phonological representations of words better than the poor readers. This suggests that good readers, in a spelling situation, have internalized better than poor readers the principle of orthography that phonetic variation is not indicated where it is predictable by general rule.

Hypothesis Three. Good readers will perform significantly better than poor readers on the visual - oral task.

It can be seen from Table 3, Comparison 3, that a significant difference ($p < .0005$) existed between good readers and poor readers on the visual - oral task. Hypothesis three was, therefore, not rejected. Good readers were more adept in hearing and recognizing the correct derived forms than poor readers were. The task seems analogous to an oral reading situation in which a student confronts a derived word, recognizes or at least visually isolates the theme form, and projects a plausible pronunciation for the derived form.

Chomsky and Halle (1968) consider the process of reading aloud and state,

> The reader is presented with a linear stretch W of written symbols, in a conventional orthography. He produces as an internal representation of this linear stretch W a string S of abstract symbols of the sort that we have been considering. Utilizing the syntactic and semantic information available to him, from a preliminary analysis of S, as well as much extra-linguistic information regarding the writer and the context, the reader understands the utterance, and, in particular, assigns to S a surface structure Σ. With Σ available, he can then produce the phonetic representation of S and, finally, the physical signal corresponding to the visual input W. Clearly, reading will be facilitated to the extent that the orthography used for W corresponds to the underlying representations provided by the grammar (p. 50).

In this task subjects only had to recognize the correct phonetic representation rather than produce it. Good readers seemed better able to produce an internal representation and apply the phonological rules in recognizing the phonetic realizations of the surface structures than poor readers.

Hypothesis Four. Good readers will perform significantly better than poor readers on the visual - visual task.

An inspection of Table 3, Comparison 4, reveals that a significant difference ($p < .025$) existed between good readers and poor readers on the visual - visual task. Hypothesis four, therefore, is not rejected. Good readers were more able than poor readers to recognize the morpheme identity cues which were present in the visual - visual task. These results support the contention that good readers recognize the abstract lexical spelling of words to a greater degree than poor readers do. It has been suggested earlier that this exploitation of the "morphophonemic" nature of conventional orthography supports the recognition of semantic relationships. The significant differences in this task ($p < .025$) did not reach the certainty levels ($p < .0005$) exhibited in comparisons 1, 2, and 3. The results of the post-hoc

investigations help to clarify the interaction which took place and which seems accountable for this anomaly.

Hypothesis Five. Performance on real words will be significantly better than on pseudo words on the oral - oral task.

As shown in Table 3, Comparison 5, a significant difference ($p < .0005$) existed between performance on real words and performance on pseudo words; hypothesis five is, therefore, not rejected. The comparison points out that the knowledge of real words contributes a confounding variable in the measurement of phonological rule learning. Quite simply this indicates that an estimate of phonological rule performance would be spuriously high if only real words were used as measurement items. It may also suggest that some lexical items are learned independent of the rule system. Performance is clearly not based solely on an individual's knowledge of the grammar.

Hypothesis Six. Performance on real words will be significantly better than on pseudo words on the oral - visual task.

Inspection of Table 3, Comparison 6, indicates a significant difference ($p < .05$) between performance on real words and performance on pseudo words. Therefore, hypothesis six is not rejected. The recognition of the correct spelling of significantly more real words than

pseudo words indicates that the knowledge of individual lexical items contributed to performance. The degree of certainty of differences for this task is less than for comparisons 5 and 7. Apparently knowledge of real word spellings contributes less to a measurement of performance.

Hypothesis Seven. Performance on real words will be significantly better than on pseudo words on the visual - oral task.

An inspection of Table 3, Comparison 7, reveals a significant difference ($p < .0005$) between performance on real words and performance on pseudo words. Hypothesis seven is, therefore, not rejected. Knowledge of specific lexical items, again, must logically be accountable for the differences exhibited.

Hypothesis Eight. Performance on real words will be significantly better than on pseudo words on the visual - visual task.

As Table 3, Comparison 8, indicates there were no significant differences ($p > .05$) between performance on real words and performance on pseudo words on the visual - visual task. Hypothesis eight is, therefore, not accepted. This finding is especially interesting since it indicates that performance is not affected by knowledge of individual lexical items in the task. The task, itself, was designed

to approximate most closely the silent reading task. It was, however, the one task in which subjects were rewarded for matching the surface structures of a response item to that of a stimulus item. In the o - o task such a direct match resulted in an incorrect answer; deep structure representations were rewarded.

Hypothesis Nine. Subjects will select the correct response reflecting conventional English orthography more frequently than phonemic approximations in the visual - visual task.

The hypothesis was tested at the .05 level by a single-sample test involving proportions. The means of each of the four treatment groups were converted into proportions and a mean proportion ($\bar{x}$ = .77) was computed. The hypothesis predicts that $p > .50$. A z of 2.388 resulted from the calculation; a z of 1.65 was needed. A further investigation revealed that a significance level of .0087 was attained. Therefore, hypothesis nine was not rejected.

In relation to this hypothesis two similar tests were performed; one was with good readers' use of conventional orthography in the v - o task, and the second was with poor readers' use of conventional orthography in the o - v task. The good readers selected correct responses significantly more frequently than phonemic approximations ($p < .009$). Poor readers, however, did not: a significance

level of .49 was reached. It is apparent that good readers recognized the morphophonemic nature of the orthography in both the spelling-like and reading-like tasks. Poor readers were not able to utilize this cue system in the spelling-like task.

The contrast in performance between a task requiring the recognition of deep level representation (v - o) and one demanding only recognition of surface structure representation (v - v) reflects the utility of conventional orthography for good readers. For these subjects an optimal orthographic representation is one which maintains a close correspondence between semantic units and orthographic representations. The recognition of this principle did not hold true for poor readers.

Preliminary to post-hoc comparisons, a significant F value was found for the remaining comparisons independent of those tested by planned comparisons. Inspection of Table 3, Remainder, reveals that the over-all F test for "other comparisons" was significant ($p < .001$). Since the over-all F test was found significant, any post-hoc comparisons were legitimate (Hays, 1963). It is not profitable to work out every conceivable comparison among the means and test each for significance; rather, the experimenter should come to tentative conclusions about

where the large and interpretable effects lie (Hays, 1963).

A series of Scheffé post-hoc comparisons ($p < .05$) was made among the modality variables with good and poor readers and real and pseudo words combined. A refinement was then made by examining the modality variables separately for good and poor readers. A total of 18 comparisons was made, with 6 comparisons necessary for each category (over-all, good, and poor).

The results of the second-order comparison are presented in Table 4.

TABLE 4

SUMMARY OF POST-HOC COMPARISONS FOR MODALITY, OVER-ALL

		Group		
	Mean	o - v	v - o	v - v
Mean Group		68.8	62.0	84.4
o - o	50.3	18.5*	11.7	34.1*
o - v	68.8		-6.8	15.6*
v - o	62.0			22.4*
v - v	84.4			

*Significant $p < .05$

With the comparisons represented in Table 4, the difference in a cell is the mean represented by column subtracted from the mean represented by row. For the 95 per cent confidence interval the obtained difference had to be greater than 15.06. Inspection of the table reveals that in the hierarchy of performance (v - v> o - v > v - o > o - o) two adjacent groups were not significantly different: o - v and v - o, and v - o and o - o.

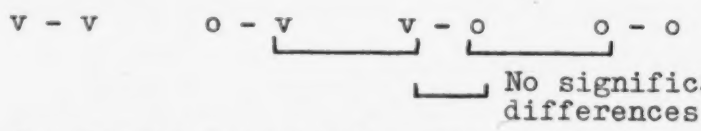

Fig. 2.--Significant Differences ($p < .05$) between Over-all Modality Groups

Figure 1 demonstrates that the v - v group is significantly different from all other groups, though none of the others were.

An inspection of the performance of good readers by modality group was conducted to determine if the same pattern existed in a first-order comparison.

TABLE 5

SUMMARY OF POST-HOC COMPARISONS FOR MODALITY, GOOD READERS

	Mean	Group o - v	v - o	v - v
Mean Group		87.3	74.6	90.1
o - o	59.9	27.4*	14.7	30.2*
o - v	87.3		-12.7	2.8
v - o	74.6			15.5
v - v	90.1			

*Significant $p < .05$

For the 95 per cent confidence interval, the obtained difference represented in the cells had to be greater than 21.3. The same hierarchy of performance as in the over-all comparison was revealed (v - v > o - v > v - o > o - o). However, the significant differences between groups was different.

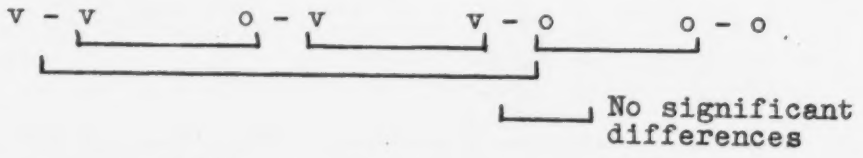

Fig. 3.--Significant Differences ($p < .05$) between Good Readers and Modality Groups

It is evident from a comparison of Figure 1 and Figure 2 that a different pattern existed for good readers than for all subjects combined. No one group was significantly different from all others. Least differences appeared to be among the v - v, o - v, and v - o groups; none were significantly different from the others.

The post-hoc comparisons of poor readers by modality group was then conducted to determine if the patterns changed with respect to both the over-all comparison and the good reader comparison.

TABLE 6

SUMMARY OF POST-HOC COMPARISONS
FOR MODALITY GROUP, POOR READERS

		Group		
	Mean	o - v	v - o	v - v
Mean Group		50.4	49.4	78.7
o - o	40.7	9.7	8.7	38.0*
o - v	50.4		-1.0	28.3*
v - o	49.4			29.3
v - v	78.7			

*Significant $p < .05$

For the 95 per cent confidence interval the obtained difference represented in the cells had to be greater than 21.3. The same hierarchy of performance was exhibited (v - v > o - v > v - o > o - o) as for the over-all and good reader comparisons. A different pattern of significant differences among groups was demonstrated though.

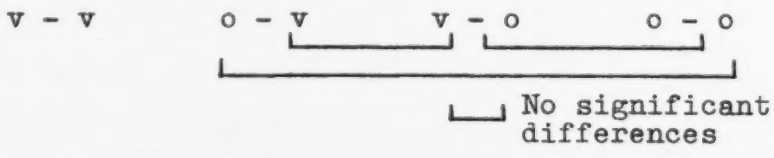

Fig. 4.--Significant Differences ($p < .05$) between Poor Readers and Modality Groups

As Figure 3 indicates, the v - v group was significantly different from all others. Least differences were observed among the o - v, v - o, and o - o groups, none of which were significantly different from any other.

A comparison of Figures 1, 2, and 3 clearly shows that the over-all comparison of performance by modality groups was inadequate. While the hierarchy of performance (v - v > o - v > v - o > o - o) remained consistent over all three comparisons, the patterns of significant differences changed when reading ability was isolated. In the over-all comparison, the only group which was significantly different from all others was the v - v group.

Good readers displayed a pattern which suggests that no one combination of stimulus and response modality affected performance in a significantly different way from all others. Where there was a visual stimulus or response no significant differences existed among the groups. The o - o groups were significantly different from both groups with visual responses.

The poor readers, on the other hand, exhibited a pattern which indicated that the v - v groups performed significantly better ($p < .05$) than all other groups. Where there was an oral stimulus or response no significant differences were displayed.

Although good readers performed significantly better than poor readers on all four modality groups, it has been shown that performance on real words was significantly better than on pseudo words in only three of the modality groups (o - o, o - v, and v - o). Also it was observed in the post-hoc comparisons that the isolation of the reading ability factor resulted in a significant difference for the v - v group of poor readers, though not for good readers. The nature of the highly significant interaction is illustrated by the difference of the means of good and poor readers on real words and pseudo words.

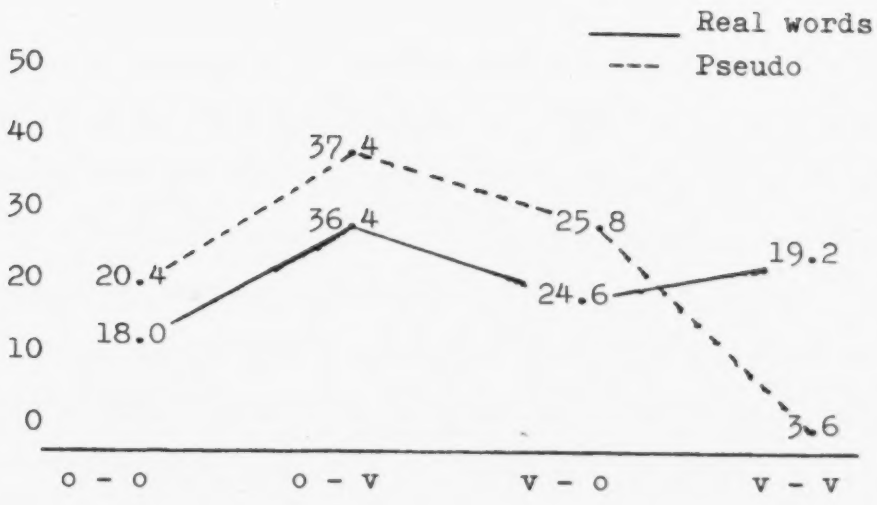

Fig. 5.--Difference of Means of Good and Poor Readers on Real Words and Pseudo Words

The lower significant difference in scores observed in testing Hypothesis 4 and the lack of a significant difference on Hypothesis 8 seem attributable to this interaction. Poor readers in the pseudo word, visual - visual cell responded to the treatment with better performance ($\bar{x}$ = 83.8) than poor readers in the real word, visual - visual cell ($\bar{x}$ = 73.6).

Summary of Results of the Study

Reading ability was significantly related to performance on the four different modality of stimulus and response tasks. Good readers consistently recognized the correct pronunciations and spellings of words where morphophonemic alternation occurred better than poor

readers did. The tasks represent measures of phonological, spelling, oral reading, and silent reading performance where predictable sound changes occur but orthographic constancy is maintained in derived words.

Word reality was related significantly to performance on three of the four different modality of stimulus and response tasks. In the visual - visual task no significant differences were observed. The results realistically show that the knowledge of individual words inflates scores on the tasks measuring performance in phonological rule processing and in recognizing the abstract lexical spellings of words. There was probably no difference between performance on real words and pseudo words in the v - v task because the task could be correctly completed by matching two surface structures without having to construct or recognize underlying forms.

Conventional orthography was selected as correct significantly more than phonemic approximations in the visual - visual task. The limitation that the task, in fact, could be accomplished without a recognition of underlying forms is clear. The o - v task, however, did require a recognition of underlying form. In this task good readers recognized the correct orthographic representation of words significantly more than phonemic approximations: poor readers did not.

Performance on the visual - visual task was shown to be significantly different from performance on all other tasks for poor readers. This case was not true with good readers. Significant interaction occurred with poor readers and especially pseudo words in this task. The results again suggest that the task was in substance different from the o - o, o - v, and v - o tasks as it did not necessitate the recognition of a deep structure. Poor readers were, hence, distinguished by this essential difference, while good readers were not significantly different in performance in this task than they were in the o - v and v - o tasks.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The present study was designed to investigate the ability of good and poor readers in grade five to recognize the form of derived words where morphophonemic alternation occurs but orthographic consistency exists. The inclusion of three independent variables permitted the investigation of interactions between reading ability, word reality, and modality of stimulus and response. The theoretical frameworks of Chomsky and Halle (1968), Venezky (1970a), and MacDonald (1969a) suggest (1) that regular phonological rules operate to specify sound-meaning correspondences, (2) that the "morphophonemic" nature of the orthography operates as an efficient system for representing these correspondences, and (3) that reading competence is, in large measure, explained and described by the covertly known phonological rules which operate on and are reflected by the orthography.

The sample was provided by eighty fifth graders from four elementary schools in Sun Prairie, Wisconsin. Forty good readers and forty poor readers were represented by an

equal number of males and females. Subjects were operationally defined as good readers by scores above the 5th stanine on both the Word Meaning and Paragraph Meaning subtests of the Stanford Achievement Test, Intermediate II; poor readers were operationally defined by occurrence of both scores in the second, third, and 4th stanines.

A 2 x 2 x 4 factorial design was employed to investigate the effects of reading ability (good and poor), word reality (real and pseudo), and modality of stimulus and response (oral - oral, oral - visual, visual - oral, and visual - visual). Five subjects were assigned to each of the 16 cells.

The task of 110 items reflected 22 morphophonemic alternation types of which 8 were consonant changes, 5 were vowel changes with no major stress pattern changes, and 9 were vowel changes accompanied by major stress pattern changes. Each type was represented by 5 items which reflected the proportional frequency of the suffixes exhibited.

Real words were classified to provide a corpus of semantically related samples to draw from. Pseudo words were constructed to reflect the concomitant alternations displayed by real words.

The task consisted of two straightforward sentences of a definitional context being read to the subjects. The slot position of the target word in sentence one was indicated by a toy cricket and subjects were exposed to the theme form either visually or acoustically. The same operation was performed with the second sentence. Four systematic response choices were provided for the derived forms either by an overhead projector or by magnetic tape. Subjects were instructed to select the alternative which seemed correct. Items answered correctly were tabulated for each subject and mean scores for each cell were calculated.

Performance scores were compared by the techniques of planned comparison, single-sample test involving proportions, and Scheffé post-hoc analysis of variance.

The planned comparisons of good readers and poor readers indicated that good readers performed significantly better than poor readers on the o - o, o - v, v - o, and v - v tasks. It was observed that performance differences on the v - v task did not reach the significance level exhibited in the other three tasks.

Performance on real words was significantly better than on pseudo words in the o - o, o - v, and v - o tasks. Performance on the v - v task was not significantly different. It was pointed out that the v - v task rewarded

the simple recognition of surface structure similarity, whereas the o - o, o - v, and v - o tasks demanded a recognition of deep level correspondence. As the rule which operated did not involve recovery from underlying forms in the v - v task, the comparison of performance with real and pseudo words did not seem affected by knowledge of individual lexical items. That is, knowledge of the grammar system did not seem to be measured by the v - v task and, hence, real word knowledge did not inflate performance scores on real words.

Conventional orthography was used in preference to phonemic representations significantly more often in the visual - visual task. Since the task did not appear to measure what it purported to, an analysis was made of good and poor readers' use of conventional orthography in the o - v task. Good readers, it was found, used conventional orthography significantly more often than phonemic alternatives; poor readers, on the other hand, did not to a significant degree. The suggestion is that conventional orthography relates semantic units more effectively than an orthography representing phonemic approximation to sound in the case of derived words. This generalization appears to hold true once some maturity in reading is achieved.

The post-hoc investigations revealed that significant interaction occurred between the visual - visual mode of stimulus and response and reading ability. Poor readers performed significantly better on the v - v task than they did on the o - o, o - v, or v - o tasks. This finding seems to confirm the implication that the v - v task rewarded a recognition of surface structure similarities without the need of making lexical level correspondences. A hierarchy of performance by modality was, also, discovered: v - v> o - v> v - o> o - o. It appears that conventional orthographic representation is a facilitative ingredient to the development of semantic relationships by observing the ordering o - v> v - o> o - o.

Limitations

This study did not control for intellecutal abilities. A bottom was in force in that all students who served as subjects were drawn from regular classrooms. Special education classes are provided in Sun Prairie for students with measurably low IQ's. Nevertheless, one cannot conclude that intellectual ability did not interact with any of the variables.

Also, a pilot study <u>per se</u> was not conducted prior to the study itself. Although no difficulties were

encountered and split-half reliabilities proved sufficiently high, prior testing would have eliminated the possibility of having to change course in midstream for the investigator.

The results must be considered limited to the population from which samples were drawn.

Conclusions and Implications

On the tasks which required recognizing regularities on a deep level (o - o, o - v, and v - o), good readers performed better than poor readers at a significant level ($p < .0005$). Also, good readers in the o - v task appeared to utilize the "common item" cue system which underlies conventional orthography, whereas, poor readers did not to a significant level.

The implication is that good readers are more competent in recognizing the underlying forms of words. By their knowledge of the phonological rules of the language and of the "morphophonemic" nature of the orthography, good readers (more than poor readers) in grade 5 were able to bypass the grapheme-phoneme correspondences and relate the surface structures of words phonologically and orthographically to deep structures. The functional stimuli for the good readers appears to be the underlying form of lexical items; that is, a search for the semantic correspondence in derived words seems

existent in the good readers. Neisser (1967) contends that word perception is a constructive synthetic activity. With the good readers a cognitive process of searching for deep structure is, therefore, apparent.

It is felt that fifth graders have not internalized the phonological rules fully. Performances on real words and pseudo words were significantly different when the recognition of underlying forms was demanded (o - o, o - v, v - o).

The "morphophonemic" nature of conventional orthography appears to be a more efficient system than one of "phonemic approximation" once some maturity in reading is achieved. Like the question of the chicken and the egg, this point poses the dilemma of whether the efficiency of the system is maximal <u>per se</u> or whether efficient readers and spellers utilize such a system. Independent of either argument, the system exists as a practical means of identifying semantic relationships by the "elimination of redundant variation" [Read, 1971, p. 24].

The pedagogical implications of these findings for the field of reading suggest that children must learn the phonological rule system of English and must learn to relate such phonological knowledge to orthographic representation. Teachers need not be expected to fully understand competence

models of the language for effective teaching in this area. It is obvious that so little is understood about the relationship of phonological knowledge and the interpretation of written symbols that a psychologically valid description is impossible.

However, it should be understood that oral language development is intimately related to reading ability. Assessments of readiness to read should include phonological performance,as well as assessments of disabled readers. A practical and easily constructed task may ask students to produce and/or recognize derived words after exposure to the theme form.

To facilitate the abstract relationship between phonological knowledge and the orthographic system, it must also be recognized that the orthography is not a system which relates grapheme to phoneme directly. The indirect relationship may then be illustrated by samples reflecting morphophonemic alternation to indicate that the appending of suffixes does not destroy a word to the creation of a totally new one, but, rather, it provides a method for using the represented concept as a different part of speech. While the semantic relationship is made, so should the orthographic one.

Several implications for future research are suggested for a more thorough knowledge of how phonological performance develops and how it is related to reading.

1. A study should be done to investigate performance on specific types of alternations. Changes in consonant and vowel qualities may not be executed with equal ability.

2. An investigation should be made of error types to discover whether erroneous rules operate. Poor readers might easily demonstrate the application of incorrect rules in contrast to an absence of rules.

3. A comparison should be made between performance on items in which vowel alternation is dependent on major stress pattern shifts and in which vowel change occurs without shifts in major stress patterns. Major stress pattern shift alone may be a significant factor.

4. A developmental study done at several grade levels should be executed. In order for instruction in reading to build upon children's existent phonological abilities, it is necessary to understand the various stages of development.

5. A correlational study should be made to determine the degree to which performances on oral - oral, oral - visual, and visual - oral types of tasks are related.

6. To investigate whether good readers engage in less inner speech than poor readers, electromyographic methods may be employed. The results of such an investigation should determine whether good readers decrease in the amount of phonological processing when derived words are represented by conventional orthography in contrast to whether poor readers decrease.

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APPENDIX A

TARGET WORDS BY ALTERNATION TYPE

REAL WORDS

k - s

elastic - elasticity
critic - criticism
fanatic - fanaticism
public - publicity
agnostic - agnosticism

t - č

quest - question
habit - habitual
Christ - Christian
tempest - tempestuous
resident - residential

t - š

elect - election
narrate - narration
inert - inertia
induct - induction
adopt - adoption

k - š

magic - magician
electric - electrician
mathematic - mathematician
optic - optician
music - musician

d - ǰ

gland - glandular
credo - credulous
reside - residual
grade - graduate
grand - grandeur

s - ž

immerse - immersion
disperse - dispersion
Paris - Parisian
perverse - perversion
diverse - diversion

z - ž

confuse - confusion
revise - revision
envisage - envision
inclose - inclosure

s - š

discuss - discussion
suffice - sufficient
commerce - commercial
repulse - repulsion
grace - gracious

ɑ - æ

table - tabular
cave - cavity
insane - insanity
nation - nationality
humane - humanity

i - ɛ

accrete - accretion
supreme - supremacy
intervene - intervention
meter - metric
severe - severity

ai - I

parasite - parasitic
crime - criminal
contrite - contrition
hostile - hostility
wise - wisdom

o - ɑ

compose - composite
episode - episodic
verbose - verbosity
atrocious - atrocity
diagnose - diagnostic

ju - ʌ

reduce - reduction
consume - consumption
introduce - introduction
assume - assumption
produce - production

ɛ - ə

labor - laborious
defame - defamation
sedate - sedative
derogate - derogatory
degrade - degradation

i - ə

vaccine - vaccination
revere - reverence
compete - competition
excrete - excretory
marine - mariner

ai - ə

confide - confidence
inclined - inclination
unite - unity
divide - dividend
expire - expiration

æ - ə

malice - malicious
autocrat - autocracy
beatify - beatific
valid - validity
canon - canonical

ə - ɛ

algebra - algebraic
certificate - certification
urban - urbane
rotary - rotarian
grammar - grammarian

ə - i

minister - ministerial
college - collegian
strategy - strategic
artery - arterial
remedy - remedial

ə - ɑ

reciprocal - reciprocity
frivolous - frivolity
demon - demonic
anatomy - anatomical
astronomy - astronomical

ə - æ

neutral - neutrality
climate - climatic
geography - geographical
gymnast - gymnastic
miracle - miraculous

ə - o

colony - colonial
envelop - envelope
harmony - harmonious
baron - baronial
theology - theologian

PSUEDO WORDS

k - s

ensotic - ensoticism
moric - moricism
sastic - sasticity
keblic - keblicity
doranic - doranicity

t - č

fornest - fornestion
labent - labential
nist - nistian
torbit - torbitual
blinest - blinestuous

t - š

honovate - honovation
sorect - sorection
nitept - niteption
filotute - filotution
klornert - klornertia

k - š

foric - forician
sonatactic - sonatactician
tebric - tebrician
berafic - berafician
poralectic - poralectician

d - ǰ

flade - fladual
nefedge - nefeduate
prand - prandular
brado - bradulous
clorede - cloredure

s - ž

rederse - redersion
sorperse - sorpersion
klaris - klarisian
neterse - netersion
proberse - probersion

z - ž

monuse - monusion
tricise - tricisian
infose - infosure
clorisage - clorision
linerise - linerision

s - š

koness - konession
renulse - renulsion
dillerce - dillercial
lemace - lemacious
plorice - ploricient

e - æ

tane - tanity
kation - kationality
delave - delavity
nable - nabular
plorane - ploranity

i - ɛ

ortreme - ortremacy
rene - renetic
lavere - laverity
keter - ketric
nocrete - nocretion

ai - I

fomite - fomition
dotile - dotility
plime - pliminal
sappile - sappilian
voralite - voralitic
frise - frisdom

o - ɑ

rone - ronic
abulose - abulosity
ronulode - ronulodic
bilagose - bilagosity
morfose - morfosite

ju - ʌ

deglume - deglumption
leduce - leduction
monoduce - monoductive
bleduce - bleduction
intersume - intersumption

ɑ - ə

intrate - intratory
bepame - bepamation
whilogate - whilogative
breglade - bregladation
kabor - kaborious

i - ə

conlete - conletition
fassere - fasserence
glomine - glominer
detrete - detretory
promine - promination

ai - ə

rebide - rebidence
consire - consiration
gletite - gletitation
blorafise - blorafisation
ofite - ofity

æ - ə

basid - basidity
ralice - ralicious
loratify - loratific
motagraph - motagraphous
aflim - aflimic

ə - ɑ

flogra - flograic
sirban - sirbane
blimmar - blimmarian
plornary - plornarian
tranada - tranadian

ə - i

tallege - tallegian
dantager - dantagerial
noregy - noregic
chortery - chorterial
stimedy - stimediae

ə - ɑ

blorinomy - blorinomical
darol - darolity
flemon - flemonic
larnipot - larnipotical
instrinomy - instrinomical

ə - æ

chormal - chormalic
kintal - kintality
roniban - ronibanity
plortast - plortastics
sornography - sornographical

ə - o

clemon - clemonious
parcony - parconial
slarom - slaromatic
striofony - striofonian
vostrony - vostronious

APPENDIX B

SENTENCE CONTEXTS

REAL WORDS

1. climate
   - S. Climate means the weather conditions of a place.
   - R. A person who knows about the weather knows about climatic conditions.
2. consume
   - S. To consume is to use up or do away with.
   - R. The amount of fuel a car uses up per mile is the consumption.
3. envelop
   - S. To envelop means to wrap up.
   - R. A letter which is wrapped up for mailing is put into an envelope.
4. grade
   - S. A grade is a level of school you are in.
   - R. To finish the last level in school is to graduate.
5. revere
   - S. To revere something is to have great respect or love for it.
   - R. A great respect or love for a leader is reverence.
6. inert
   - S. Something inert cannot move or change alone.
   - R. Something that cannot move or change alone may be said to have inertia.
7. theology
   - S. Theology is the study of religious beliefs.
   - R. Someone who studies religious beliefs deeply is a theologian.

8. nation

S. A nation is a group of people with the same culture and government.

R. People with the same culture and government are of the same nationality.

9. atrocious

S. An atrocious act is a cruel and brutal one.

R. A man who does a cruel or brutal deed has done an atrocity.

10. introduce

S. To introduce is to present one person to another.

R. The act of presenting one person to another is an introduction.

11. optic

S. An optic sense deals with the ability to see.

R. A person who makes eyeglasses for seeing better is an optician.

12. commerce

S. Commerce is the buying and selling of goods.

R. The buying and selling of food is a commercial act.

13. meter

S. A meter is a unit of length.

R. The system which most scientists use is the metric system.

14. fanatic

S. A fanatic is someone who is overly enthusiastic.

R. Someone who is overly enthusiastic may be said to behave with fanaticism.

15. college

S. A college is a school that offers four years of training after high school.

R. If you attend a four-year school after high school, you will then be a collegian.

16. reduce

S. To reduce means to lessen or lower.

R. A woman who lowers her weight has made a reduction.

17. Paris

S. Paris is the largest city in France.

R. Someone from the largest city in France is a Parisian.

18. demon

S. A demon is a devil or evil spirit.

R. The devil performs demonic deeds.

19. compete

S. To compete is to try for the same prize, such as winning.

R. Trying to win a game in sports means competition.

20. confuse

S. To confuse means to mix up things.

R. If everything is mixed up, there is a state of confusion.

21. artery

S. An artery is a main road.

R. A place where main roads meet is an arterial.

22. disperse

S. To disperse is to spread out in all directions.

R. The spreading out in all directions of something is a dispersion.

23. valid

S. To be valid means to be well-grounded or reasonable.

R. An excuse which is well-grounded or reasonable has validity.

24. habit

S. A habit is an action that is done often.

R. An act done often may be considered a habitual one.

25. frivolous

S. A frivolous person is one who is silly.

R. People who are silly have frivolity.

26. minister

S. A minister carries out the orders of God in a church.

R. By carrying out the orders of God, a clergyman performs ministerial duties.

27. wise

S. To be wise is to show good judgment.

R. A parent who uses good judgment has wisdom.

28. inclose

S. To inclose means to surround an area, as with a fence.

R. A yard surrounded by a fence would be an inclosure.

29. severe

S. To be severe is to be strict or harsh.

R. A ruler who is strict may be known for his severity.

30. marine

S. To be marine means to be near or of the sea.

R. A sailor working on the sea is a mariner.

31. electric

S. An electric wire now brings power into our homes for lighting.

R. Wires with power for lighting are fixed by the electrician.

32. mathematics

S. A mathematics problem usually means working with numbers.

R. Someone who [illegible] with numbers and problems may be a mathematician.

33. geography

S. In geography you study the parts of the world.

R. Someone who studies the parts of the world has geographical interests.

34. cave

S. A cave is a hollow place on a hillside.

R. A hollow place on a tooth is called a cavity.

35. contrite

S. To be contrite is to show sorrow because of guilt.

R. Someone who showed his sorrow because of guilt would be in the state of contrition.

36. neutral

S. To be neutral means not to take part in either side of a quarrel.

R. A person who does not take part in either side of a quarrel shows his neutrality.

37. grammar

S. Grammar is a system which tries to explain language.

R. A person who studies the system of language is a grammarian.

38. grand

S. Scenery which is grand is especially beautiful.

R. Especially beautiful scenery may be said to have grandeur.

39. induct

S. To induct is to introduce a person to a club with a ceremony.

R. A ceremony to introduce someone to a club is called an induction.

40. anatomy

S. Anatomy is the study of the way animals are built.

R. A description of the way an animal is built is an anatomical one.

41. discuss

S. To discuss a topic is to talk about it.

R. If a group of students talked about a topic, it would be a discussion.

42. divide

S. To divide means to separate into parts.

R. The quantity or number to be separated into parts is the dividend.

43. rotary

S. Rotary club is one which businessmen often belong to.

R. If you become a businessman, you may become a rotarian.

44. labor - laborious

S. To labor is to work hard.

R. A task requiring hard work is laborious.

45. elect

S. To elect means to choose a person by voting.

R. A process of choosing people is called an election.

46. expire

S. To expire means to come to an end.

R. A parking meter at the end of its time has reached its expiration.

47. humane

S. To be humane is to have the best qualities of mankind, such as mercy and kindness.

R. Someone who has mercy and kindness displays the quality of humanity.

48. episode

S. An episode is an incident that happens to a character.

R. A story which tells about many incidents happening to a character is episodic.

49. urban

S. An urban area is a highly populated one, for example, Chicago.

R. If someone picks up big city ways, he may be considered urbane.

50. credo

S. A credo is a brief statement of belief.

R. Someone who believes too easily may be said to be credulous.

51. verbose

S. To be verbose is to use too many words.

R. A person who uses too many words to tell a story may be accused of verbosity.

52. reside

S. To reside can mean to be present.

R. Something left over after another part is taken away is a residual.

53. degrade

S. To degrade is to lower one's moral character.

R. If someone lowers his moral character by stealing, he has gone through a process of degradation.

54. parasite

S. A parasite is an animal that lives off another without returning help.

R. An animal that lives off another without returning help is parasitic.

55. table

S. A table is a chart for showing facts in rows and columns.

R. Facts shown in rows and columns would be in tabular form.

56. perverse

S. Something perverse is not considered normal.

R. An act which is not considered normal may be a perversion.

57. excrete

S. To excrete means to separate waste material from the body or blood.

R. In sweating, the separation of water from the body is an excretory function.

58. canon

S. A canon is a body of laws of a church.

R. If you follow the laws of your church, you obey canonical laws.

59. resident

S. A resident is someone who lives in a certain place.

R. An area where many people live may be called a residential area.

60. confide

S. To confide is to share secrets.

R. A person you can share your secrets with is someone you have confidence in.

61. envisage

S. To envisage something is to form an image of it in your mind.

R. To form a picture of something in the future would be to envision it.

62. immerse

S. To immerse is to drop something into a liquid.

R. The act of dropping something into a watery liquid is an immersion.

63. compose

S. To compose means to form in a combination, as flour and water make paste.

R. Flour and water in paste is the composite.

64. unite

S. To unite means to bring together to form a common agreement.

R. A classroom which has a total agrement has unity.

65. algebra

S. Algebra is an area of mathematics usually taught in high school.

R. When you are in high school, you will probably do algebraic problems.

66. beatify

S. To beatify is to make very happy.

R. Future plans which would make you very happy are beatific.

67. Christ

S. Christ is the man many consider the second person of God.

R. Those who follow the teachings of this man are called Christians.

68. agnostic

S. An agnostic is someone who thinks it is impossible to know if there is a God.

R. Someone who thinks it is impossible to know if there is a God displays agnosticism.

69. grace

S. Grace is a quality of acting with politeness.

R. A girl who acts with politeness may be said to be gracious.

70. incise

S. To incise is to cut into with a sharp tool.

R. An operation that requires a cut into a body would include an incision.

71. repulse

S. To repulse is to reject something.

R. If you reject a person, it may be an act of repulsion.

72. crime

S. A crime is an act which is against the law.

R. Anyone who performs an act against the law is a criminal.

73. reciprocal

S. A reciprocal act is one done in return for another.

R. If you do a good deed for someone who has been good to you, there is reciprocity.

74. derogate

S. To derogate is to lessen or impair.

R. A statement which lessens or impairs a person's reputation is a derogatory one.

75. magic

S. Magic is making something by unknown powers.

R. Someone who seems to make things by unknown powers is a magician.

76. revise

S. To revise means to reread and correct errors.

R. A theme that has been reread and corrected has undergone a revision.

77. gymnast

S. A gymnast performs athletic exercises and tricks.

R. Someone who can do athletic exercises can do gymnastic acts.

78. supreme

S. To be supreme is to be the highest in rank.

R. If someone was the highest in rank, he would have supremacy.

79. diagnose

S. To diagnose means to identify a condition by examination.

R. A doctor who wants to know your health condition will make a diagnostic examination.

80. incline

S. To be inclined is to have a certain preference or liking, as in clothes.

R. Someone with certain likes has an inclination.

81. diverse

S. Something which is diverse is varied or different.

R. A pastime which is different is a diversion.

82. autocrat

S. An autocrat is a dictator with complete power over others.

R. A kind of government where one person has complete power is an autocracy.

83. intervene

S. To intervene is to come between two points.

R. A line drawn between two points would be an intervention.

84. quest

S. A quest is a journey in search of something.

R. To seek an answer is to have a question.

85. harmony

S. Harmony is a combination of parts put into an orderly whole.

R. The different parts played at one time by a band form a harmonious sound.

86. miracle

S. A miracle is an event that cannot be explained by the regular laws of nature.

R. An event which the laws of nature can not explain is miraculous.

87. hostile

S. To be hostile means to be unfriendly.

R. An unfriendly person may be showing hostility.

88. adopt

S. To adopt a child means to take a child and raise it as your own.

R. The process of taking a child into your family as your own child is called an adoption.

89. music

S. Music is an arrangement of sounds and tones.

R. Someone who performs in making sounds and tones is a musician.

90. accrete

S. To accrete means to grow by being added to.

R. The growth of an island resulting from earth added to it is an example of accretion.

91. malice

S. Malice is the desire to harm others or do wrong.

R. If a person harms another and wishes to do so, he has committed a malicious act.

92. vaccine

S. A vaccine is often a shot by a doctor to prevent a disease.

R. If a doctor gives you a shot to prevent a disease, it may be a vaccination.

93. critic

S. A critic is a person who forms and expresses judgments of things.

R. An expressed judgment of something is a piece of criticism.

94. defame

S. To defame is to attack another person's reputation.

R. If someone attacks the reputation of another he is guilty of defamation.

95. remedy

S. A remedy is a medicine or treatment that cures or heals.

R. A treatment that cures a disease is called remedial.

96. strategy

S. Strategy is the science of planning.

R. A military leader who plans his battle moves ahead of time uses strategic power.

97. tempest

S. A tempest is a great storm.

R. Very stormy weather may be called tempestuous.

98. suffice

S. To suffice is to provide as much of something as is needed.

R. A dinner that provided enough food for everyone would be sufficient.

99. colony

S. A colony is a group of people who move to a distant land but stay under the power of their home land.

R. A person who moves to a distant land but stays under the power of his home land is called a colonial.

100. baron

S. A baron is a low-ranking member of British nobility.

R. A low-ranking member of British nobility may have only baronial power.

101. public

S. If a story is public it is made known to most people.

R. When a story is made widely known, it is given publicity.

102. astronomy

S. Astronomy is the study of the stars and heavens.

R. A book about the stars would contain astronomical facts.

103. sedate

S. To be sedate means to be quiet or calm.

R. A pill to make a person quiet or calm is called a sedative.

104. insane

S. To be insane is to be crazy.

R. To be crazy is to be in the state of insanity.

105. produce

S. To produce is to make or manufacture something.

R. Articles which are manufactured are the result of production.

106. gland

S. A gland is a part of the body which separates parts of the blood.

R. Someone whose blood is not separated as it should be may have a glandular disease.

107. narrate

S. To narrate means to tell a story.

R. A story which is told may be called a narration.

108. assume

S. To assume means to take something for granted.

R. If you take something for granted, you have made an assumption.

109. certificate

S. A certificate is a printed statement that a person is able to do a job.

R. To show that you are able to do certain jobs, you may need certification papers.

110. elastic

S. To be elastic means to be able to return to an original state after being stretched.

R. If something is able to return to its original state after being stretched it has the quality of elasticity.

PSEUDO WORDS

1. leduce

   S. To leduce means to not tell a person about a phone call that is for him.

   R. Someone who doesn't tell his brother about a phone call for him commits leduction.

2. abulose

   S. To be abulose is to be such a slow walker that you always arrive last.

   R. Someone who walks so slowly that he always arrives last shows abulosity.

3. rederse

   S. Something which is rederse has many spots all over it.

   R. A leaf with many spots all over it may be called a redersion.

4. filotute

   S. To filotute means to darken the color of a substance.

   R. A rug which has become darker has gone through the process of filotution.

5. neterse

   S. To be neterse is to act in a showy manner.

   R. Someone who is a show-off has netersion.

6. instrinomy

   S. Instrinomy is the study of life on the moon.

   R. A question about life on the moon is an instrinomical one.

7. linerise

   S. To linerise is to intentionally make a confusing statement.

   R. A statement which a person makes confusing on purpose is a linerision.

8. plime

   S. A plime is an argument with your parents.

   R. Someone who argues with his parents is a pliminal.

9. chormal

   S. A chormal is an event which is explained by seeing it.

   R. An event which is explained only by seeing it is chormalic.

10. blimmar

   S. To blimmar is to swallow water when swimming.

   R. Someone who swallows water when he is swimming is a blimmarian.

11. tane

   S. To be tane is to have little power in the government.

   R. A person with little power ir his government has tanity.

12. voralite

   S. Voralite is a sport in which only one hand may touch the ball.

   R. Other sports in which only one hand can be used may be considered voralitic.

13. rone

   S. A rone is a plant that grows short and full.

   R. A tree that is short and bushy looks ronic.

14. clorisage

   S. To clorisage is to paint an object with many colors.

   R. A statue painted with many different colors is called a clorision.

15. noregy

S. A noregy is soft bed.

R. A soft bed can be called noregic.

16. intrate

S. To intrate is to say "Hello" first to a person you don't know well.

R. Someone who says "Hello" first to people he doesn't know well is intratory.

17. gletite

S. To gletite means to follow a person because he dresses well.

R. Someone who follows a person because he dresses well commits gletitation.

18. rebide

S. To rebide means to overhear a conversation.

R. A conversation overheard is a rebidence.

19. labent

S. To labent is to ask how to please another person.

R. A person who always asks how to please another may be considered a labential one.

20. proberse

S. To proberse is to ask for compliments.

R. Someone who asks for compliments shows his probersion.

21. kation

S. A kation is a class of insects which all have three sets of wings.

R. Two insects with three sets of wings each have the same kationality.

22. bleduce

S. To bleduce means to burn your hot dog over a camp fire.

R. Someone who burns his hot dog over a campfire performs bleduction.

23. basid

S. To be basid is to be impolite among those you don't like.

R. Someone who is impolite with people he doesn't like performs basidity.

24. tranada

S. A tranada is a sleeping sickness caused by the sting of certain bees.

R. Someone with sleeping sickness who was stung by a bee is a tranadian.

25. breglade

S. To breglade means to call a friend on the telephone every week.

R. A club where everyone calls a friend every week is a bregladation.

26. roniban

S. A roniban is a cold and piercing rain.

R. A day of cold, piercing rain may be remembered for its ronibanity.

27. klaris

S. Klaris is a club which snake haters belong to.

R. If you hate snakes, you may become a klarisian.

28. slarom

S. A slarom is a machine that measures the quality of eggs.

R. A farmer who uses a machine to measure the quality of his eggs has a slaromatic method.

29. kintal

S. A kintal is a way of thinking which is not understood by others.

R. Someone whose way of thinking is not understood by others has kintality.

30. moric

S. A moric is someone who tries to imagine others in the future.

R. The attempt to imagine others in the future years is moricism.

31. keter

S. A keter is a machine which can find angleworms.

R. A fisherman who uses a machine to find angleworms has a ketric method.

32. plorane

S. To be plorane is to be floating in space forever.

R. A lost rocket floating in space forever is in ploranity.

33. nable

S. A nable is a sharp instrument used for cutting heavy rope.

R. A sailor wanting a sharp tool to cut heavy rope will look for a nabular one.

34. glomine

S. Glomine is a drug to make you happy.

R. Someone who takes a drug to be happy is a glominer.

35. tallege

S. A tallege is a boat which can move sideways.

R. Someone who steers a boat that can move sideways is a tallegian.

36. vastrony

S. Vastrony is the feeling of being happy but sad at the same time.

R. Someone who is happy but sad at the same time has vastronious feelings.

37. bepame

S. To bepame means to start a new club.

R. A man who starts a new club in town performs bepamation.

38. detrete

S. To detrete is to put your feet upon chairs.

R. Someone who puts his feet up on chairs is detretory.

39. berafic

S. To be berafic is to know when others are telling the truth.

R. A person who knows when others are telling the truth is a berafician.

40. plornary

S. Plornary is the study of T.V. programs.

R. Someone who studies T.V. programs is a plornarian.

41. infose

S. To infose something is to fill it as full as possible.

R. A lunchbox which is filled as full as possible may be called an infosure.

42. sappile

S. A sappile is a fence made of wooden posts and wire.

R. A fence made of wooden posts and wire is sappilian.

43. striofony

S. Striofony is the craft by carving wooden animals.

R. A man who carves wooden animals is a striofonian.

44. dillerce

S. A bush that is dillerce has branches that bend to the ground.

R. A bush with branches bending to the ground is called a dillercial one.

45. flade

S. To flade means to slowly destroy.

R. An article which is slowly destroyed goes through a fladual process.

46. motagraph

S. A motagraph is a funny T.V. commercial.

R. A T.V. commercial which is funny is motagraphous.

47. ronulode

S. A ronulode is a street that curves often.

R. A street that curves often is ronulodic.

48. sorperse

S. To sorperse is to remove something without being seen.

R. If you remove something without being seen you may later confess to sorpersion.

49. sonatactic

S. To be sonatactic means to have the ability to read upside down.

R. Someone who can read upside-down is a sonatactician.

50. kabor

S. To kabor is to dream in colors.

R. A night of dreaming in color would be a kaborious one.

51. promine

S. A promine is a huge flood that washes away trees and houses.

R. When trees and houses are washed away by a flood, the cause is promination.

52. clemon

S. A clemon is a high, squeaky sound.

R. Someone with a high, squeaky voice has a clemonious sound.

53. stimedy

S. To stimedy means to fight against a decision.

R. Someone who fights against a decision takes stimedial action.

54. monuse

S. To monuse is to kill with a single stroke or shot.

R. A warrior who kills with a single stroke or shot may be honored for monusion.

55. conlete

S. To conlete means to build an empire by robbing from other matrons.

R. An empire built by robbing other nations is a conletition.

56. honovate

S. To honovate means to warn that time is running out.

R. A teacher who warns that time is running out on a test makes an honovation.

57. flemon

S. A flemon is an animal with long curly hair.

R. A dog with long curly hair is flemonic.

58. foric

S. Foric is the study of Indian tribal songs.

R. Someone who studies Indian tribal songs may be a forician.

59. flogra

S. Flogra is a type of fish that kills snakes for food.

R. A fish that kills snakes for food is flograic.

60. ensotic

S. To be ensotic is to be afraid to walk alone.

R. Someone who is afraid to walk alone may show ensoticism.

61. torbit

S. A torbit is a person with the power to make you forget.

R. Someone who has the power to make you forget may be torbitual.

62. lemace

S. To be lemace is to be groggy and unaware.

R. A person who is groggy and unaware when he gets up is lemacious.

63. blinest

S. a blinest is a tangle or knot that cannot be undone.

R. A knot in a string that cannot be undone is blinestuous.

64. larnipot

S. A larnipot is a plan to make you very rich.

R. Someone with a plan to become very rich is larnipotical.

65. sorrect

S. To be sorrect is to give presents for a false reason.

R. A gift which is given for a false reason is a sorrection.

66. plortast

S. A plortast is someone who grows oversized vegetables.

R. To grow oversized vegetables, one needs to know about plortastics.

67. morfose

S. To morfose is to eat so fast that you are always the first one done at the table.

R. A person who is always the first one done eating is a morfosite.

68. deglume

S. To deglume means to remove small twigs from logs for firewood.

R. Firewood logs which have had the small twigs removed from them have undergone deglumption.

69. nefede

S. A nefede is a house built of wood and concrete.

R. To build a house of wood and concrete is to nefeduate one.

70. aflim

S. An aflim is a city run by representatives from each block.

R. A city run by representatives from each block is aflimic.

71. whilogate

S. A whilogate is a call for help.

R. Someone who often calls for help is whilogative.

72. rene

S. To be rene is to be filled with the curse of a witch.

R. Someone filled with the curse of a witch may do renetic actions.

73. ortreme

S. To be ortreme is to be so bright that the human eye can't look at it.

R. Something so bright that the human eye can't look at it has ortremacy.

74. monoduce

S. To monoduce is to pick a favorite friend.

R. A person who picks a favorite friend makes a monoductive choice.

75. nitept

S. To nitept is to interrupt so that two people can no longer talk together.

R. A person who interrupts so that two others can no longer talk may perform a niteption.

76. fomite

S. To fomite is to act surprised when you aren't.

R. If you act surprised when you aren't, you perform fomition.

77. koness

S. To koness means to pretend that you are stronger than others.

R. A person who pretends that he is stronger than others may be considered in the state of konession.

78. sastic

S. To be sastic is to be without sharp edges.

R. A basketball, which doesn't have sharp edges, has the quality of sasticity.

79. tricise

S. To tricise means to cut something into three parts.

R. A pie which has been cut into three parts is in the state of tricision.

80. consire

S. To consire something is to pound on it until it is dented.

R. A car with a dent pounded into it has a consiration.

81. darol

S. A darol is a man who likes to play cards.

R. A group of men who play cards together is a darolity.

82. nist

S. A nist is a monster that tries to make children stumble and fall.

R. Someone who tries to make children stumble and fall is called a nistian.

83. poralectic

S. Poralectic is a regularity as might appear in jewels.

R. A jeweler who explains the regularity in stones is a poralectician.

84. intersume

S. To intersume means ~~to~~ decide between two things.

R. Someone who decides between two things to buy makes an intersumption.

85. keblic

S. To be keblic means to tell your secrets to your best friends.

R. Someone who tells his secrets to his best friends has the quality of keblicity.

86. dotile

S. To be dotile is to be so sick that you can't get out of bed.

R. Someone who is so sick that he can't get out of bed has a problem of dotility.

87. plorice

S. To be plorice is to be jolly and friendly all the time.

R. Someone who is jolly and friendly all the time has ploricient ways.

88. chortery

S. Chortery is a wish to be with your friends.

R. If you wish to be with your friends you are chorterial.

89. sirban

S. A sirban is a house with a tin roof.

R. A house with a tin roof is sirbane.

90. lavere

S. To be lavere means to be able to change from one form to another.

R. A balloon which can change from one form to another has laverity.

91. fornest

S. To fornest is to take a journey which takes you from state to state.

R. Someone who goes from state to state to visit capitol buildings is on a fornestion.

92. bilagose

S. To be bilagose is to want to be called on first in class.

R. Someone who wants to be called on first in class may not show his bilagosity.

93. clorede

S. To clorede is to threaten to expose all you know about a person.

R. A threat that you will expose all you know about a person is a cloredure.

94. blorinomy

S. A blorinomy is a loud yell of happiness.

R. A loud yell of happiness is a blorinomical sound.

95. delave

S. To be delave means to take away someone's name.

R. Someone whose name has been taken away is in a state of delavity.

96. parcony

S. A parcony is a zoo with uncaged animals.

R. A zoo with uncaged animals is a parconial park.

97. loratify

S. To loratify means to create a new recipe.

R. A newly created recipe is loratific.

98. nocrete

S. To nocrete something is to destroy it for no good reason.

R. To destroy a book for no good reason is a case of nocretion.

99. renulse

S. To renulse something is to torture it until death occurs.

R. A mouse that is tortured until it dies has been through renulsion.

100. ralice

S. Ralice is the sound of rushing water.

R. A waterfall with the sound of rushing water is ralicious.

101. blorafise

S. To blorafise means to write a poem about hate.

R. A poem written about hate is a blorifisation.

102. klornert

S. To be klornert is to be ahead of everyone else.

R. The person who is ahead of everyone else has klornertia.

103. sornography

S. Sornography is the study of eating patterns.

R. Someone studying eating patterns has sornographical interests.

104. tebric

S. A tebric is the part of a machine which moves the fastest.

R. A repairman who fixes the part of a machine that moves fastest is a tebrician.

105. brado

S. A brado is a question which cannot be answered at once.

R. To ask questions which cannot be answered at once is to be a bradulous person.

106. dantager

S. A dantager is a person who sprays the trees for insects.

R. Someone who sprays the trees for insects has a dantagerial job.

107. prand

S. To prand is to track an animal by its footprints.

R. A hunter who can follow an animal by its footprints uses a prandular system.

108. ofite

S. To ofite is to plant a garden with flowers of one color.

R. A garden with only red flowers in it is an ofity.

109. fassere

S. To fassere is to like the looks of another person.

R. Someone who likes the looks of another person has fasserence for him.

110. doranic

S. A doranic is a person who thinks that the sky will fall in.

R. Someone who thinks the sky will fall in may be said to have doranicity.

APPENDIX C

RESPONSE ALTERNATIVES

REAL WORDS

Theme Form	Oral Alternatives	Visual Alternatives
1. climate	a. clōmahtic	a. climahtic
	b. climahtic	b. climahtik
	c. clīmatic	c. climatic
	d. climætic	d. climetic
2. consume	a. consimption	a. consuhmption
	b. consōmption	b. consuhmpshun
	c. consumption	c. consumption
	d. consūmption	d. consomption
3. envelop	a. envūlip	a. envelohpe
	b. envelip	b. envelohp
	c. envelōpe	c. envelupe
	d. envelәpy	d. envelope
4. grade	a. graduate	a. grazhuate
	b. grazuate	b. graduate
	c. grajuate	d. grajuate
	d. gratuate	d. grajwuat
5. revere	a. reverence	a. revuhrence
	b. revarence	b. reverence
	c. revērence	c. revuhrens
	d. rōverence	d. revurence

6. inert	a. inerfia	a. inerzia
	b. inersha	b. inershia
	c. inertia	c. inertia
	d. inerzia	d. inersha
7. theology	a. theūlígian	a. theolugian
	b. theolígian	b. theologian
	c. theolágian	c. theolohjun
	d. theolōgian	d. theolohgian
8. nation	a. notionality	a. nationality
	b. nationality	b. nahshunalaty
	c. nutionality	c. nahtionality
	d. nātionality	d. netionality
9. atrocious	a. atrĭcity	a. atrocity
	b. atrocity	b. atrecity
	c. atrocity	c. atrahcity
	d. atrōcity	d. atrahsety
10. introduce	a. introdūction	a. introduhction
	b. introdōction	b. introduhkshun
	c. introdŭction	c. introduction
	d. introdĭction	d. introdoction
11. optic	a. optishian	a. optishun
	b. optisian	b. optishian
	c. optikian	c. optician
	d. optigian	d. optikian

12. commerce	a. commertial	a. commershial
	b. commershial	b. commercial
	c. commerkial	c. commerzial
	d. commersial	d. commershal
13. meter	a. mətric	a. mehtric
	b. mētric	b. metric
	c. metric	c. mehtrik
	d. mōtric	d. matric
14. fanatic	a. fanatishism	a. fanatisizm
	b. fanatibism	b. fanatisism
	c. fanatikism	c. fanatikism
	d. fanatisism	d. fanaticism
15. college	a. cōllāg'ian	a. collagian
	b. collāg'ian	b. collihjun
	c. col'leg'ian	c. collihgian
	d. collēg'ian	d. collegian
16. reduce	a. redŭction	a. reduhkshun
	b. redĭction	b. reduhction
	c. redŏction	c. redoction
	d. redūction	d. reduction
17. Paris	a. Paritən	a. Parizhian
	b. Parižən	b. Parishian
	c. Parikən	c. Parisian
	d. Parisən	d. Parizhun

18. demon	a. dḗmonic	a. demenic
	b. demṓnic	b. demahnic
	c. dāmṓnic	c. demahnik
	d. demónic	d. demonic
19. compete	a. compḗtition	a. compuhtishun
	b. cṓmpetition	b. compuhtition
	c. competition	c. competition
	d. compṓtition	d. computition
20. confuse	a. confuzən	a. confushion
	b. confutən	b. confusion
	c. confukən	c. confuzhion
	d. confužən	d. confuzhun
21. artery	a. artārial	a. artihrial
	b. ortārial	b. artihryul
	c. arterial	c. artarial
	d. arterēal	d. arterial
22. disperse	a. dispertən	a. disperzhun
	b. disperžən	b. disperzhion
	c. disperkən	c. dispersion
	d. dispersən	d. dispershion
23. valid	a. velidity	a. velidity
	b. validity	b. validity
	c. validity	c. vuhlidity
	d. valōdity	d. vuhlidaty

24. habit	a. habitual	a. habichual
	b. habichual	b. habishual
	c. habipual	c. habichwol
	d. habishual	d. habitual
25. frivolous	a. frívolity	a. frivahlity
	b. frāvōlity	b. frivality
	c. frivolity	c. frivahlaty
	d. frivōlity	d. frivolity
26. minister	a. ministērial	a. ministerial
	b. minōstārial	b. ministihrial
	c. ministeríal	c. ministihryul
	d. ministārial	d. ministarial
27. wise	a. wisdom	a. wesdom
	b. wōsdom	b. wihzdum
	c. waisdom	c. wihsdom
	d. wēsdom	d. wisdom
28. inclose	a. inclokure	a. inclozhar
	b. inclozure	b. incloshure
	c. incloture	c. inclosure
	d. incloẑure	d. inclozhure
29. severe	a. sevōrity	a. sevarity
	b. sevŭrity	b. sevehrity
	c. severity	c. sevehraty
	d. sevērity	d. severity

30. marine	a. mṓriner	a. maruhner
	b. maŕiner	b. mariner
	c. marāńer	c. maruner
	d. marēńer	d. maruhner
31. electric	a. electrisian	a. electrician
	b. electrigian	b. electrikian
	c. electrishian	c. electrishun
	d. electrikian	d. electrishian
32. mathematic	a. mathematigian	a. mathematishian
	b. mathematisian	b. mathematishun
	c. mathematikian	c. mathematikian
	d. mathematishian	d. mathematician
33. geography	a. geográphical	a. geographical
	b. geogrā́phical	b. geogrephical
	c. geográphical	c. geograhphical
	d. geōgrā́phical	d. geograhfikul
34. cave	a. cāvity	a. cavity
	b. cævity	b. cevity
	c. cŭvity	c. cahvity
	d. cōvity	d. cahvaty
35. contrite	a. contrition	a. contrihtion
	b. contrētion	b. contretion
	c. contrītion	c. contrition
	d. contrōtion	d. contrihshun

36. neutral	a. neú'trality	a. neutrality
	b. nōtral'ity	b. neutrelity
	c. neutral'ity	c. neutrahlety
	d. neutræ'lity	d. neutrahlity
37. grammar	a. grammar'ian	a. grammahryun
	b. grammari'an	b. grammarian
	c. grōmmari'an	c. grammerian
	d. grammār'ian	d. grammahrian
38. grand	a. grandeur	a. grandeur
	b. granǰeur	b. granjur
	c. granteur	c. granjeur
	d. granzeur	d. granzheur
39. induct	a. induczən	a. induczìon
	b. induɕhən	b. induction
	c. induʃən	c. inducshun
	d. inductən	d. inducshion
40. anatomy	a. anatomí'cal	a. anatomical
	b. anatōmí'cal	b. anatemical
	c. anūtōmí'cal	c. anatahmikul
	d. anatá'mical	d. anatahmical
41. discuss	a. discuɕhən	a. discushun
	b. discutən	b. discussion
	c. discuʃən	c. discushion
	d. discukən	d. discuzion

42. divide	a. divĭdénd	a. divuhdend
	b. divēdénd	b. divuhdand
	c. dōvídend	c. divadend
	d. dívidend	d. dividend
43. rotary	a. rotaŕian	a. rotarian
	b. rotaríán	b. rotahryun
	c. rotāŕian	c. roterian
	d. rātāŕian	d. rotahrian
44. labor	a. lēboríous	a. luhboryus
	b. laboŕious	b. laborious
	c. lāboríous	c. leborious
	d. labāríous	d. luhborious
45. elect	a. elecʃən	a. eleczion
	b. elecshən	b. elecshion
	c. electən	c. elecshun
	d. eleczən	d. election
46. expire	a. expĭŕation	a. expuhration
	b. ōxpiŕation	b. exparation
	c. expiŕation	c. expiration
	d. expēŕation	d. expuhrashun
47. humane	a. humŭnity	a. humahnity
	b. humānity	b. humanity
	c. humænity	c. humahnaty
	d. humōnity	d. humenity

48. episode	a. episŏdic	a. episahdik
	b. episŭdic	b. episahdic
	c. episĭdic	c. episodic
	d. episōdic	d. episedic
49. urban	a. ārban′	a. urbahne
	b. urban′	b. urbene
	c. urb́any	c. urbahn
	d. urbān′	d. urbane
50. credo	a. credulous	a. crezhulous
	b. crezulous	b. crejalus
	c. cretulous	c. crejulous
	d. crejŭlous	d. credulous
51. verbose	a. verbōsity	a. verbahsity
	b. verbosity	b. verbahsaty
	c. verbĭsity	c. verbesity
	d. verbŭsity	d. verbosity
52. reside	a. resijŭal	a. residual
	b. residual	b. resijwel
	c. resizual	c. resizhual
	d. resitual	d. resijual
53. degrade	a. degród́ation	a. degruhdation
	b. degrād́ation	b. degradation
	c. degradát́ion	c. degrodation
	d. dōgradát́ion	d. degruhdashun

54. parasitc	a. parasētic	a. parasihtic
	b. parasitic	b. parasitic
	c. parasītic	c. parasetic
	d. parasōtic	d. parasihtik
55. table	a. tōbular	a. tahbular
	b. tabular	b. tabular
	c. tābular	d. tahbuler
	d. tŭbular	d. tabular
56. perverse	a. perveržən	a. perverzhion
	b. persərsən	b. perverzhun
	c. perverkən	c. pervershion
	d. pervertən	d. perversion
57. excrete	a. excrā́tory	a. excretory
	b. excrḗtory	b. excrutory
	c. exćretory	c. excruhtawry
	d. ōxćretory	d. excruhtory
58. canon	a. canāńical	a. cuhnonical
	b. cōnóńical	b. cuhnonikul
	c. canońical	c. canonical
	d. cańonical	d. cenonical
59. resident	a. residentəl	a. residenchial
	b. residenpəl	b. residential
	c. residenshəl	c. residenchul
	d. residenchəl	d. residenshial

60. confide	a. confidénce	a. confadence
	b. cõnfidence	b. confuhduns
	c. confidence	c. confuhdence
	d. confēdénce	d. confidence
61. envisage	a. envikən	a. envision
	b. envižən	b. envizhun
	c. envizən	c. envishion
	d. envitən	d. envizhion
62. immerse	a. immersən	a. immerzhun
	b. immertən	b. immerzhion
	c. immerkən	c. immersion
	d. immeržən	d. immershion
63. compose	a. compisite	a. compahsite
	b. compōsite	b. compesite
	c. composite	c. compahzut
	d. compusite	d. composite
64. unite	a. unīty	a. unuhti
	b. unēty	b. unuhty
	c. ōnity	c. unaty
	d. ūnity	d. unity
65. algebra	a. algēbroic	a. algebreic
	b. algebroic	b. algebrahic
	c. algebrāic	c. algebraic
	d. algebraic	d. algebrahik

66. beatify	a. beatíc	a. beuhtific
	b. beōtíific	b. beuhtifik
	c. boatíc	c. beatific
	d. beatíific	d. beitific
67. Christ	a. Chrishən	a. Chrishian
	b. Christən	b. Christian
	c. Chrispən	c. Chrischun
	d. Chrischən	d. Chrischian
68. agnostic	a. agnostishism	a. agnostisizm
	b. agnostibism	b. agnosticism
	c. agnostisism	c. agnostikism
	d. agnostikism	d. agnostisism
69. grace	a. grashəs	a. grazious
	b. grasəs	b. grashious
	c. gratəs	c. grashus
	d. grakəs	d. gracious
70. incise	a. inciž̌ən	a. incishion
	b. incitən	b. incizhion
	c. incikən	c. incision
	d. incizən	d. incizhun
71. repulse	a. repultən	a. repulsion
	b. repulkən	b. repulshion
	c. repulsən	c. repulshun
	d. repulshən	d. repulzion

72. crime	a. crēminal	a. criminal
	b. crōminal	b. creminal
	c. criminal	c. crihminal
	d. crĭminal	d. crihmnul
73. reciprocal	a. resūprōcity	a. reciprahcity
	b. reciprōcity	b. reciprecity
	c. reciprocity	c. reciprahsity
	d. reciprocity	d. reciprocity
74. derogate	a. derogatory	a. derogatory
	b. derogātory	b. deroguhtory
	c. dorogatory	c. deroguhtawry
	d. derogitory	d. derogetory
75. magic	a. magigən	a. magishun
	b. magishən	b. magician
	c. magisən	c. magikian
	d. magikən	d. magishian
76. revise	a. revižən	a. revizhun
	b. revikən	b. revizhion
	c. revizən	c. revision
	d. revitən	d. revishion
77. gymnast	a. gymnastic	a. gymnahstik
	b. gymnastic	b. gymnestic
	c. gĭmnastic	c. gymnahstic
	d. gymnæstic	d. gymnastic

78. supreme	a. suprōmacy	a. supramacy
	b. suprumacy	b. supremacy
	c. supremacy	c. suprehmacy
	d. suprēmacy	d. suprehmasy
79. diagnose	a. diagnustic	a. diagnostic
	b. diagnōstic	b. diagnahstic
	c. diagnostic	c. diagnestic
	d. diagnistic	d. diagnahstik
80. incline	a. ōnclination	a. inclanation
	b. inclination	b. incluhnation
	c. inclēnation	c. incluhnashun
	d. inclīnation	d. inclination
81. diverse	a. diverzən	a. divershion
	b. diversən	b. diverzhun
	c. diverkən	c. diversion
	d. divertən	d. diverzhion
82. autocrat	a. autocrēcy	a. autocracy
	b. autocracy	b. autocruhsy
	c. autōcracy	c. autocruhcy
	d. autocræcy	d. autocrecy
83. intervene	a. intervention	a. intervention
	b. intervuntion	b. intervantion
	c. intervēntion	c. intervehntion
	d. intervōntion	d. intervehnchun

84. quest	a. queshən	a. queschun
	b. quespən	b. queschion
	c. questən	c. question
	d. queschən	d. queshion
85. harmony	a. harmoni'ous	a. harmohnious
	b. harmon'ious	b. harmonious
	c. hūrmin'ious	c. harmohnyus
	d. harmin'ious	d. harmunious
86. miracle	a. miræc'ulous	a. mireculous
	b. mir'aculous	b. mirahkulus
	c. mirac'ulous	c. mirahculous
	d. mōrac'ulous	d. miraculous
87. hostile	a. hostēlity	a. hostihlity
	b. hostīlity	b. hostility
	c. hostōlity	c. hostelity
	d. hostility	d. hostihlaty
88. adopt	a. adoptən	a. adoption
	b. adopzən	b. adopshun
	c. adopshən	c. adopshion
	d. adopfən	d. adopzion
89. music	a. musisən	a. musician
	b. musigən	b. musishian
	c. musishən	c. musishun
	d. musikən	d. musikian

90. accrete	a. accrḗtion	a. accrehtion
	b. accrṓtion	b. accration
	c. accrŭ́tion	c. accrehshun
	d. accrĕ́tion	d. accretion
91. malice	a. malŭ́cious	a. muhlishus
	b. mĕ́licious	b. muhlicious
	c. malí́cious	c. malicious
	d. má́licious	d. melicious
92. vaccine	a. vṓccinátion	a. vaccuhnation
	b. vaccinátion	b. vaccenation
	c. vaccĭ́nátion	c. vaccination
	d. vaccā́nátion	d. vaccuhnashun
93. critic	a. critishism	a. critisism
	b. critikism	b. critikism
	c. critibism	c. criticism
	d. critisism	d. critisizm
94. defame	a. defamátion	a. defuhmation
	b. defṓmátion	b. defemation
	c. dāfamátion	c. defuhmashun
	d. defā́mátion	d. defamation
95. remedy	a. remedí́al	a. remihdyul
	b. rĭ́mā́dial	b. remedial
	c. remé́dial	c. remadial
	d. remā́dial	d. remihdial

96. strategy	a. stratégic	a. stratagic
	b. stratégic	b. stratihgic
	c. strōtūgic	c. strategic
	d. stratūgic	d. stratihjik
97. tempest	a. tempospuous	a. tempeschuous
	b. tempeschuous	b. tempestuous
	c. tempeshuous	c. tempeshuous
	d. tempestuous	d. tempeschwus
98. suffice	a. suffitənt	a. suffizient
	b. suffishənt	b. suffishunt
	c. suffikənt	c. sufficient
	d. suffisənt	d. suffishient
99. colony	a. colonial	a. colunial
	b. colinial	b. colohnial
	c. cūlinial	c. colohnyul
	d. colōnial	d. colonial
100. baron	a. būrinial	a. barohnial
	b. barōnial	b. barunial
	c. barinial	c. baronial
	d. baronial	d. barohnyul
101. public	a. publisity	a. publikity
	b. publibity	b. publicity
	c. publishity	c. publisaty
	d. publikity	d. publisity

102. astronomy	a. astronimical	a. astronomical
	b. astronomical	b. astronemical
	c. astronomical	c. astronahmikul
	d. astrūnimical	d. astronahmical
103. sedate	a. seditive	a. sedetive
	b. sedative	b. sedative
	c. sādative	c. seduhtive
	d. sedātive	d. seduhtiv
104. insane	a. insōnity	a. insahnaty
	b. insunity	b. insahnity
	c. insānity	c. insenity
	d. insæanity	d. insanity
105. produce	a. prodōction	a. produhction
	b. produūction	b. prodoction
	c. prodiction	c. production
	d. production	d. produhkshun
106. gland	a. glanzular	a. glanjular
	b. glanjular	b. glanjeler
	c. glantular	c. glandular
	d. glandular	d. glanzhular
107. narrate	a. narrazən	a. narrashun
	b. narratən	b. narrashion
	c. narrashən	c. narrazion
	d. narrafən	d. narration

108. assume	a. assōmption	a. assomption
	b. assūmption	b. assuhmption
	c. assumption	c. assuhmpshun
	d. assimption	d. assumption
109. certificate	a. certificátion	a. certificetion
	b. certifícation	b. certificahshun
	c. certifōcátion	c. certificahtion
	d. certificātion	d. certification
110. elastic	a. elastibity	a. elasticity
	b. elastisity	b. elastisaty
	c. elastikity	c. elastikity
	d. elastishity	d. elastisity

PSEUDO WORDS

Theme Form	Oral Alternatives	Visual Alternatives
1. leduce	a. ledūction	a. leduhkshun
	b. lediction	b. leduhction
	c. leduction	c. ledoction
	d. ledōction	d. leduction
2. abulose	a. abulisity	a. abulahsity
	b. abulasity	b. abulahsety
	c. abulōsity	c. abulesity
	d. abulusity	d. abulosity
3. rederse	a. rederkən	a. rederzhun
	b. redersən	b. rederzhion
	c. rederžən	c. redersion
	d. redertən	d. redershion
4. filotute	a. filotushən	a. filotuzion
	b. filotutən	b. filotushun
	c. filotuzən	c. filotushion
	d. filotufən	d. filotution
5. neterse	a. netertən	a. neterzhion
	b. neteržən	b. neterzhun
	c. netersən	c. netershion
	d. neterkən	d. netersion

6. instrinomy	a. instrinōmical	a. instrinomical
	b. instrinómical	b. instrinemical
	c. instrōnōmical	c. instrinahmikul
	d. instrinomical	d. instrinahmical
7. linerise	a. linerit͡an	a. linerishion
	b. linerizan	b. linerizhion
	c. linerikan	c. linerision
	d. linerižan	d. linerizhun
8. plime	a. plōminal	a. pliminal
	b. plīminal	b. pleminal
	c. pliminal	c. plihminal
	d. plēminal	d. plihmnul
9. chormal	a. chormálic	a. chormahlic
	b. chormalic	b. chormalic
	c. chārmálic	c. chormelic
	d. chorm ælic	d. chormahlik
10. blimmar	a. blimmarían	a. blimmahryun
	b. blimmārian	b. blimmarian
	c. blōmmarian	c. blimmerian
	d. blimmarían	d. blimmahrian
11. tane	a. tunity	a. tahnaty
	b. tānity	b. tahnity
	c. tōnity	c. tenity
	d. tanity	d. tanity

12. voralite	a. voralitic	a. voralihtic
	b. voralōtic	b. voralitic
	c. voralīt̀ic	c. voraletic
	d. voralētic	d. voralihtik
13. rone	a. rōnic	a. renic
	b. ronic	b. rahnic
	c. runic	c. rahnik
	d. rinic	d. ronic
14. clorisage	a. clorikən	a. clorision
	b. clorižən	b. clorizhun
	c. cloritən	c. clorishion
	d. clorizən	d. clorizhion
15. noregy	a. nārāǵic	a. noragic
	b. norāǵic	b. norihgic
	c. norēǵic	c. noregic
	d. norágic	d. norihjik
16. intrate	a. intritóry	a. intratory
	b. intrātóry	b. intruhtory
	c. ōntratory	c. intruhtawry
	d. intratory	d. intretory
17. gletite	a. glōtitatión	a. gletatation
	b. gletitatión	b. gletuhtation
	c. gletētétation	c. gletuhtashun
	d. gletīt́ation	d. gletitation

18. rebide	a. rebídence	a. rebadence
	b. rōbídence	b. rebuhduns
	c. rebēdénce	c. rebuhdence
	d. rebĭdénce	d. rebidence
19. labent	a. labenpəl	a. labenchual
	b. labentəl	b. labenshual
	c. labenshəl	c. labenchwol
	d. labenchəl	d. labentual
20. proberse	a. prober**s**ən	a. prober**sh**ion
	b. prober**ž**ən	b. prober**zh**un
	c. prober**t**ən	c. prober**s**ion
	d. prober**k**ən	d. prober**zh**ion
21. kation	a. kōtionality	a. kationality
	b. kætionality	b. kahshunalaty
	c. kutionality	c. kahtionality
	d. kātionality	d. kotionality
22. bleduce	a. bleduction	a. bleduhction
	b. bledōction	b. bleduhkshun
	c. blediction	c. bledoction
	d. bledūction	d. bleduction
23. basid	a. basōdíty	a. besidity
	b. bisídity	b. basidity
	c. basídity	c. buhsidity
	d. basidíty	d. buhsidaty

24. tranada	a. tranadi'an	a. tranadian
	b. tranad'ian	b. tranahdian
	c. tranād'ian	c. tranedian
	d. trōnad'ian	d. tranahdyun
25. breglade	a. brōgladā'tion	a. bregluhdation
	b. breglidā'tion	b. bregledution
	c. bregladā'tion	c. bregladation
	d. breglādā'tion	d. bregluhdashun
26. roniban	a. roni'bunity	a. ronibenity
	b. ronibæni'ty	b. ronibahnuty
	c. ronibani'ty	c. ronibahnity
	d. ronūbani'ty	d. ronibanity
27. klaris	a. klarisən	a. klarizhian
	b. klaritən	b. klarishian
	c. klarižən	c. klarisian
	d. klarikən	d. klarizhun
28. slarom	a. slāromati'c	a. slarohmatic
	b. slurēmati'c	b. slaromatic
	c. slārēmati'c	c. slarohmatik
	d. slaro'matic	d. slarumatic
29. kintal	a. kin'tality	a. kintality
	b. kōntil'ity	b. kintelity
	c. kintil'ity	c. kintahlety
	d. kintal'ity	d. kintahlity

30. moric	a. morikism	a. morisism
	b. moribism	b. morisizm
	c. morisism	c. morikism
	d. morishism	d. moricism
31. keter	a. ketric	a. ketric
	b. kōtric	b. kehtric
	c. kētric	c. kehtrik
	d. kutric	d. katric
32. plorane	a. plorānity	a. plorahnity
	b. plorōnity	b. ploranity
	c. plorænity	c. plorahnaty
	d. plorunity	d. plorenity
33. nable	a. nābular	a. nahbular
	b. nōbular	b. nabular
	c. næbular	c. nahbuler
	d. nubular	d. nebular
34. glomine	a. glomāner	a. glomuhnor
	b. glominer	b. glominer
	c. glomīner	c. glomuner
	d. glæminer	d. glomuhner
35. tallege	a. tallēgian	a. tallagian
	b. tōllāgian	b. tallihjun
	c. tallāgian	c. tallihgian
	d. tallegian	d. tallegian

36. vastrony	a. vastroníous	a. vastrohnyus
	b. vūstrinious	b. vastrunious
	c. vastrinious	c. vastrohnious
	d. vastrōnious	d. vastronious
37. bepame	a. bepāmation	a. bepuhmation
	b. bepamation	b. bepemation
	c. bōpūmation	c. bepuhmashun
	d. bepūmation	d. bepamation
38. detrete	a. detrētory	a. detretory
	b. detrātory	b. detrutory
	c. detretory	c. detruhtawry
	d. dōtretory	d. detruhtory
39. berafic	a. berafishən	a. berafician
	b. berafigən	b. berafishian
	c. berafisən	c. berafishun
	d. berafikən	d. berafikian
40. plornary	a. plornæ.rian	a. plornarian
	b. plornarian	b. plornahryun
	c. plornarian	c. plornerian
	d. plirnarian	d. plornahrian
41. infose	a. infozər	a. infozher
	b. infožər	b. infoshure
	c. infotər	c. infosure
	d. infokər	d. infozhure

42. sappile	a. sappōlian	a. sappihlian
	b. sappēlian	b. sappihlyun
	c. sappilian	c. sappelian
	d. sappīlian	d. sappilian
43. striofony	a. strīofinían	a. striofunian
	b. strēofinían	b. striofonian
	c. striofoníán	c. striofohnyun
	d. striofōnían	d. striofohnian
44. dillerce	a. dillersəl	a. dillershial
	b. dillerkəl	b. dillercial
	c. dillertəl	c. dillerzial
	d. dillershəl	d. dillershal
45. flade	a. flazular	a. flajeler
	b. flaǰular	b. flajular
	c. flatular	c. fladular
	d. fladular	d. flazhular
46. motagraph	a. motagráphous	a. motagriphous
	b. motágraphous	b. motagraphous
	c. motōgráphous	c. motagruhphous
	d. motágriphous	d. motagruhfus
47. ronulode	a. ronulōdic	a. ronulahdic
	b. ronuladic	b. ronulahdic
	c. ronuludic	c. ronulodic
	d. ronulidic	d. ronuledic

48. sorperse	a. sorpertən	a. sorperzhun
	b. sorperkən	b. sorperzhion
	c. sorperžən	c. sorpershion
	d. sorpersən	d. sorpersion
49. sonatactic	a. sonatactisən	a. sonatactishian
	b. sonatactishən	b. sonatactishun
	c. sonatactikən	c. sonatactikian
	d. sonatactigən	d. sonatactician
50. kabor	a. kabor'ious	a. kaborious
	b. kabir'ious	b. kuhborious
	c. kibori'ous	c. keborious
	d. kābori'ous	d. kuhboryus
51. promine	a. promēnation	a. promanation
	b. præmin'ation	b. promuhnation
	c. promination	c. promuhnashun
	d. promān'ation	d. promination
52. clemon	a. clemin'ious	a. clemohnious
	b. clēmoni'ous	b. clemonious
	c. clemōn'ious	c. clemohnyus
	d. clomin'ious	d. clemunious
53. stimedy	a. stōmād'ial	a. stimihdyul
	b. stimād'ial	b. stimedial
	c. stimēd'ial	c. stimadial
	d. stimed'ial	d. stimihdial

54. monuse	a. monuzən	a. monushion
	b. monutən	b. monusion
	c. monukən	c. monuzhion
	d. monužən	d. monuzhun
55. conlete	a. conlētátion	a. conluhtishun
	b. cōnletition	b. conluhtition
	c. conletítion	c. conletition
	d. conlītátion	d. conlutition
56. honovate	a. honovashən	a. honovashun
	b. honovatən	b. honovashion
	c. honovazən	c. honovazion
	d. honovafən	d. honovation
57. flemon	a. fleminic	a. flemenic
	b. flēmonic	b. flemahnic
	c. flemonic	c. flemahnik
	d. flōminic	d. flemonic
58. foric	a. forigən	a. forician
	b. forisən	b. forikian
	c. forishən	c. forishun
	d. forikən	d. forishion
59. flogra	a. flōgraic	a. flogreic
	b. flāgrēic	b. flograhic
	c. flogrēic	c. flograic
	d. flogrāic	d. flograhik

60. ensotic	a. ensotikism	a. ensotikism
	b. ensotibism	b. ensotisizm
	c. ensotisism	c. ensoticism
	d. ensotishism	d. ensotisism
61. torbit	a. torbishual	a. torbishual
	b. torbichual	b. torbichual
	c. torbitual	c. torbitual
	d. torbipual	d. torbichwol
62. lemace	a. lemasəs	a. lemazious
	b. lemakəs	b. lemashious
	c. lematəs	c. lemashus
	d. lemashəs	d. lemacious
63. blinest	a. blinespuous	a. blineschuous
	b. blinestuous	b. blinestuous
	c. bineschuous	c. blineshuous
	d. blineshuous	d. blineschwus
64. larnipot	a. larnipotical	a. larnipahtikul
	b. larnipitical	b. larnipahtical
	c. lōrnipitical	c. larnipotical
	d. larnipotical	d. larnipetic
65. sorrect	a. sorrecfən	a. sorrecshun
	b. sorreczən	b. sorrecshion
	c. sorrecshən	c. sorreczion
	d. sorrectən	d. sorrection

66. plortast	a. plortastics	a. plortahstiks
	b. plortistics	b. plortestics
	c. plārtistics	c. plortahstics
	d. plortastics	d. plortastics
67. morfose	a. morfusite	a. morfesite
	b. morfōsite	b. morfahzit
	c. morfisite	c. morfosite
	d. morfosite	d. morfahsite
68. deglume	a. deglimption	a. degluhmption
	b. deglōmption	b. degluhmpshun
	c. deglumption	c. deglumption
	d. deglūmption	d. deglomption
69. nefede	a. nefejuate	a. nefezhuate
	b. nefeduate	b. nefejuate
	c. nefezuate	c. nefeduate
	d. nefetuate	d. nefejewit
70. aflim	a. aflimic	a. uhflimik
	b. aflōmic	b. iflimic
	c. aflimic	c. uhflimic
	d. ēflimic	d. aflimic
71. whilogate	a. whilogitive	a. whilogetive
	b. whilōgative	b. whilogative
	c. whilogative	c. whiloguhtive
	d. whilogative	d. whiloguhtiv

72. rene	a. runetic	a. renehtic
	b. rōnetic	b. renehtik
	c. renetic	c. renatic
	d. rēnetic	d. renetic
73. ortreme	a. ortromacy	a. ortramacy
	b. ortrumacy	b. ortremacy
	c. ortremacy	c. ortrehmacy
	d. ortrēmacy	d. ortrehmasy
74. monoduce	a. monoductive	a. monoduhctive
	b. monodūctive	b. monodoctive
	c. monodictive	c. monoductive
	d. monodōctive	d. monoduhktiv
75. nitept	a. nitepfən	a. nitepshion
	b. nitepshən	b. niteption
	c. nitepzən	c. nitepzion
	d. niteptən	d. nitepshun
76. fomite	a. fomition	a. fomihtion
	b. fomētion	fometion
	c. fomītion	c. fomition
	d. fomōtion	d. fomihshun
77. koness	a. konessən	a. koneshun
	b. konestən	b. konession
	c. koneskən	c. koneshion
	d. koneshən	d. konezion

78. sastic	a. sastibity	a. sasticity
	b. sastishity	b. sastisaty
	c. sastisity	c. sastikity
	d. sastikity	d. sastisity
79. tricise	a. tricikən	a. tricizhun
	b. tricizən	b. tricizhion
	c. tricižən	c. tricision
	d. tricitən	d. tricishion
80. consire	a. cōnsirátion	a. consuhration
	b. consirátion	b. consaration
	c. consērátion	c. consiration
	d. consīrátion	d. consuhrashun
81. darol	a. darolity	a. darahlity
	b. darólity	b. darolity
	c. darōlity	c. darelity
	d. dūrōlity	d. darahlaty
82. nist	a. nishən	a. nishian
	b. nischən	b. nistian
	c. nispən	c. nischun
	d. nistən	d. nischian
83. poralectic	a. poralectishən	a. poralectician
	b. poralectisən	b. poralectishun
	c. poralectigən	c. poralectishian
	d. poralectikən	d. poralectikian

84. intersume	a. intersimption	a. intersomption
	b. intersōmption	b. intersuhmption
	c. intersūmption	c. intersuhmpshun
	d. intersumption	d. intersumption
85. keblic	a. keblikity	a. keblikity
	b. keblisity	b. keblicity
	c. keblibity	c. keblisaty
	d. keblishity	d. keblisity
86. dotile	a. dotility	a. dotihlity
	b. dotīlity	b. dotility
	c. dotēlity	c. dotelity
	d. dotōlity	d. dotihlaty
87. plorice	a. ploritənt	a. plorizient
	b. plorisənt	b. plorishunt
	c. plorikənt	c. ploricient
	d. plorishənt	d. plorishient
88. chortery	a. chorteríal	a. chortihrial
	b. chortaríal	b. chortihryul
	c. chortēríal	c. chortarial
	d. chārtaríal	d. chorterial
89. sirban	a. sirban′	a. sirbahne
	b. sōrban′	b. sirbene
	c. sirbān′	c. sirbahn
	d. sírbany	d. sirbane

90. lavere	a. lavērity	a. lavarity
	b. lavōrity	b. lavehrity
	c. lavurity	c. lavehraty
	d. laverity	d. laverity
91. fornest	a. fornespən	a. forneschun
	b. forneshən	b. forneschion
	c. forneschən	c. fornestion
	d. fornestən	d. forneshion
92. bilagose	a. bilagisity	a. bilagahsety
	b. bilagosity	b. bilagosity
	c. bilagōsity	c. bilagesity
	d. bilagusity	d. bilagahsity
93. clorede	a. clorezər	a. clorejer
	b. cloredər	b. clorejure
	c. cloretər	c. cloredure
	d. clorejər	d. clorezhure
94. blorinomy	a. blorinomical	a. blorinomical
	b. blorinōmical	b. blorinemical
	c. blārinōmical	c. blorinahmikul
	d. blarinómical	d. blorinahmical
95. delave	a. delavity	a. delavity
	b. delovity	b. delevity
	c. delāvity	c. delahvity
	d. deluvity	d. delahvaty

96. parcony	a. parconíal	a. parcunial
	b. parcōníal	b. parcohnial
	c. pōrkiníal	c. parcohnyul
	d. parkiníal	d. parconial
97. loratify	a. lorōtífic	a. loruhtific
	b. loratífic	b. loruhtifik
	c. lorētífic	c. loratific
	d. lorætífi c	d. loritific
98. nacrete	a. nacrution	a. nacrehtion
	b. nacretion	b. nacration
	c. nacrōtion	c. nacrehshun
	d. nacrētion	d. nacretion
99. renulse	a. renulsən	a. renulsion
	b. renultən	b. renulshion
	c. renulkən	c. renulshun
	d. renulshən	d. renulzion
100. ralice	a. rōlícious	a. ruhlishus
	b. relícious	b. ruhlicious
	c. rēlícious	c. ralicious
	d. rælício us	d. relicious
101. blorafise	a. blorifīsátion	a. blorafuhzashun
	b. blārifisátion	b. blorafisation
	c. blorafēsátion	c. blorafuhsation
	d. blorifisátion	d. blorafasation

102. klornert	a. klornerzia	a. klornerzia
	b. klornertia	b. klornershia
	c. klornersha	c. klornertia
	d. klornerfia	d. klornersha
103. sornography	a. sornagráphical	a. sornographical
	b. sornagraephical	b. sornogrephical
	c. sārnagráphical	c. sornograhphical
	d. sornográphical	d. sornograhfikul
104. tebric	a. tebrigən	a. tebrishun
	b. tebrisən	b. tebrishian
	c. tebrikən	c. tebrician
	d. tebrishən	d. tebrikian
105. brado	a. bratulous	a. bradzhulous
	b. bradulous	b. brajelus
	c. brazulous	c. brajulous
	d. brajulous	d. bradulous
106. dantager	a. dantagārial	a. dantagarial
	b. dantagērial	b. dantagerial
	c. dōntagārial	c. dantagihrial
	d. dantagerial	d. dantagihryul
107. prand	a. pranzular	a. pranjular
	b. prandular	b. prandular
	c. pranjular	c. pranjewler
	d. prantular	d. pranzhular

108. ofite	a. ūfíty	a. ofuhti
	b. ofítý	b. ofuhty
	c. ofity	c. ofaty
	d. ofētý	d. ofity
109. fassere	a. fassārence	a. fassuhrence
	b. fassērence	b. fasserence
	c. fōsserence	c. fassuhrens
	d. fasserence	d. fassurence
110. doranic	a. doranibity	a. doranisaty
	b. doranisity	b. doranisity
	c. doranikity	c. doranikity
	d. doranishity	d. doranicity